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9 July 1993



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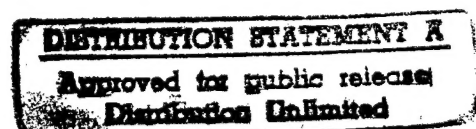
JPRS Report

Environmental Issues

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Environmental Issues

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NAMIBIA

Wildlife Ministry Holds First Game Auction

MB3005161093 Johannesburg SAPA in English
1430 GMT 30 May 93

[Text] Waterberg Plateau Park, Namibia May 30 SAPA—Namibia's Wildlife Ministry raked in nearly R[Rand]1.3 million from its first ever game auction on Friday, but rejected a bid of R180,000 each for six rare black rhinoceros.

Most of the country's game farming and conservation community were at the Waterberg Plateau Park for the auction of elephant, giraffe, buffalo, eland, zebra, roan antelope, hartebees and impala, all of which went for above-expected prices.

The ministry initially hoped to raise up to R3.8-million from the auction.

An anonymous foreign buyer bid R180,000 each for the black rhino, well below the R500,000 reserve price. Ministry sources said many conservationists felt the inflated reserve price had kept many potential buyers away.

Auctioneer Clive Gardner said the offer for the rhino could still be negotiated. The highest price ever paid for a black rhino is the R540,000 fetched by the Natal Parks Board last year, he said.

Most of the game was bought by Namibians, though South Africans from Hoedspruit and Warmbaths bought roan antelope and buffalo.

Officials Hold News Briefing on Environmental Protection

OW1306005693 Beijing Central People's Radio Network in Mandarin 2230 GMT 4 Jun 93

[From the "News and Press Review" program]

[Text] The State Council's Information Office, the State Environmental Protection Bureau, and the UN Environment Program jointly held a news briefing in Beijing on 4 June to brief Chinese and foreign reporters on this year's world environment day and on China's environmental protection situation, and to answer reporters' questions about environmental issues.

It has been learned that since last year's UN Conference on Environment and Development, the Chinese Government has attached great importance to the international obligations it has undertaken and has endeavored to promote the country's environmental protection work. Closely centering on economic construction, all localities and departments in the country have established environmental protection systems, worked out environmental protection measures, and endeavored to refine these systems and measures, making new progress in the country's environmental protection work.

Last year, China announced 30 state environmental standards and 12 environmental protection standards for individual industries. Some special economic zones in coastal areas have begun to work out regional environmental standards that are applicable to individual special economic zones. The State Environmental Protection Bureau has begun to inspect the popularization of legal knowledge about environmental protection in the country's environmental protection departments. Currently, 370 cities and 5,295 enterprises in the country have started to monitor water pollution, and an annual environmental protection plan has been included in the national economic and social development program. In addition, new progress has been made in tackling urban areas' environmental problems by employing comprehensive measures.

At the news briefing, responsible individuals of state departments concerned and Elizabeth Dowdeswell, executive director of the UN Environment Program, answered reporters' questions about environmental issues.

China To Strengthen Cooperation With UNEP in Fighting Pollution

40101015C Beijing CHINA DAILY in English 5 Jun 93 p 1

[Text] China's fight to protect the environment has to be seen as part of the world struggle, President Jiang Zemin said in Beijing yesterday.

He was speaking as he met a party led by Elizabeth Dowdeswell, visiting United Nations Under-Secretary-General and Executive Director of the United Nations Environment Programme (UNEP).

"The co-operation between China and the UNEP in the past has been successful," said Jiang.

"And the Chinese Government is ready to strengthen such co-operation."

Jiang welcomed Dowdeswell, who is here to celebrate the 20th anniversary of World Environment Day today.

He said he was glad that UNEP decided to hold this year's celebrations in Beijing.

Environmental protection is one of China's basic policies, he added, and the Chinese Government attaches great importance to it.

He told the visitors that China has drawn up a principle of ensuring a harmonious economic, social and environmental development.

And he said it had carried out effective policies and regulations which are in line with China's real conditions.

Dowdeswell expressed her appreciation of China's achievements in solving the issues between poverty and environment.

She hoped it would continue to play a positive role in international environmental affairs, and she wished the celebrations of Environment Day in Beijing well.

But there was bad news as officials said yesterday that China's environment still faces serious problems.

Members of the National Environmental Protection Agency told a Beijing press conference that China still faces tough work in pollution control despite the progress it has made in this field so far.

And the country's environmental situation was continuing to deteriorate mainly because of the rapid development of basic industries such as energy and raw materials.

Top NEPA official Qu Geping pledged that the country would further tighten its environmental legislation and take effective measures to curb further problems.

The administrator hoped world organizations would continue and expand their support to help China seek the best way to co-ordinate development of the economy and the environment.

He also disclosed that NEPA is to declare six new national industrial pollutants limits this year.

NEPA's 1992 national environmental report released yesterday showed increased discharges of sulphur dioxide and soot.

It also said the number of cities affected by acid rain had gone up.

The report said atmospheric pollution caused by coal combustion in cities was more serious in winter and spring than in summer and autumn.

It was more serious in the north of China than in the south and more serious in big and medium-sized cities than in small cities and towns.

Atmospheric pollution had become the major cause of respiratory diseases, especially chronic bronchial pneumonia.

Last year, organic pollutants in waste water also increased. River pollution in cities was fairly serious.

And land subsidence grew in the case of 45 large and medium-sized cities.

Water quality of some coastal waters, estuaries and bays was poor.

The report also said that last year, various localities and departments comprehensively carried out the State Council's Decision to strengthen environmental protection and actively implemented eight systems and measures on environmental management. (Xinhua—CD)

EP Bureau Official Interviewed on National Environmental Protection

OW0806090093 Beijing Central People's Radio Network in Mandarin 2230 GMT 30 May 93

[Editorial Report] Beijing Central People's Radio Network in Mandarin at 2230 GMT on 30 May, during its regular "News and Press Review" program, broadcasts the first of a series of reports on China's environmental protection efforts. According to the announcer, the series was prepared to mark World Environment Day, and in an effort to help listeners understand China's environment, and heighten the public's awareness of protecting the environment.

The first report, a 7-minute long article, features a recorded interview with Qu Geping, director of the State Environmental Protection Bureau. In the interview, Qu Geping first affirms China's achievements in environmental protection, noting that China has succeeded in protecting its environment despite its rapid economic development. He cites the cities of Dalian, Suzhou, Hangzhou, Guangzhou as examples of China's success in environmental protection. He attributes China's achievement to emphasis placed on environmental protection by past and present party leaders. He says: "In his report to the 14th National Party Congress, Comrade Jiang Zemin called for making environmental protection a strategic task. This shows that the party sets great score on environmental protection. Comrade Li Peng also attaches great importance to environmental protection. During his service in the State Council, he supervised the work of the Environmental Protection Commission for many years. After he became premier, he consistently showed great concern concerning environmental protection."

In response to a reporter's question, Qu Geping explains China's environmental protection policy. He says: "In 1983 at the second national environmental protection conference, Premier Li Peng put forward a policy on behalf of the State Council, namely simultaneously pushing forward economic development, urban and rural construction, and environmental development through unified planning to achieve unity of the three. In addition to this policy, we have also established an important work guideline, namely, emphasizing the important role of environmental management in preventing environment pollution and ecological destruction. Environmental management means enacting laws,

establishing agencies, and supervising environmental protection in accordance with the law.

Turning to problems in environmental protection, Qu Geping said: "Given its large population, China's environmental resources are very limited. Take the arable land for example—our per capita acreage is only a little more than 1 mu. Take our water resources for another example—the total volume of water used in our country is about one quarter of the volume used in a developed country. Under such circumstances, we must treasure our environment and resources—the task of environmental protection has become all the more important."

At the end of the interview, Qu Geping told the reporter: "We have put forth a new slogan for our environmental work, namely, protect our blue sky while promoting reform and opening up."

State Lists 3,000 Enterprises as Major Polluters

OW2505114693 Beijing XINHUA in English 1118 GMT 25 May 93

[Text] Beijing, May 25 (XINHUA)—The State Administration for Environmental Protection made public the names of 3,000 Chinese enterprises which are blamed for the lion's share of industrial pollution in the country.

"Although these enterprises account for only four percent of the country's pollution-causing industrial enterprises, the industrial waste and other pollutants they have released account for over 60 percent of the total industrial pollution of the country," Wang Yangzu, deputy-director of the administration, told a press conference here this morning.

"If major efforts are made for the control of environmental problems caused by the 3,000 enterprises, China will be much cleaner," Wang said.

According to Wang, most of China's environmental problems have been caused by industrial pollution.

Some of the country's leading industrial enterprises have been put on the "blacklist", including the Anshan Iron and Steel Complex, the Yangtze Industrial Petrochemicals Company, the Daqing General Plant of Industrial Petrochemicals, the Nanjing Industrial Petrochemicals Group Company, Shanghai General Plant of Industrial Petrochemicals, the Xuzhou Power Plant, and the Fushun Aluminum Plant.

Industrial Pollution Controls Reportedly Strengthened

HK2805081593 Beijing CHINA DAILY in English 26 May 93 p 1

[Article by staff reporter Zhu Baoxia: "Industrial Pollution Controls Tightened"]

[Text] The National Environmental Protection Agency (NEPA) has taken steps to tighten inspection and control over industrial enterprises that have been found to discharge untreated pollutants from their plants.

Some 3,000 enterprises from across the country have been chosen as the target during the first phase of the national

anti-pollution drive from 1993 to 1995, according to Wang Yangzu, deputy director of NEPA.

These enterprises are mainly from the chemical and metallurgical, paper making, food processing, electricity generating and building materials industries.

The 3,000 enterprises, representing only 4 percent of domestic firms that produce pollutants, are, nevertheless, responsible for nearly 60 percent of the annual volume of industrial pollutants discharged in the country.

Most of the chosen firms are located in the 12 industrialized provinces of Liaoning, Hunan, Sichuan, Henan, Jiangsu, Shandong, Zhejiang, Heilongjiang, Jilin, Hubei, Shanxi and Hebei.

NEPA hopes that industrial pollution, which is the major cause of the country's environmental problem, may be brought under control by the end of the century, and urban environment will also be greatly improved.

The deputy director explained that the strategy is to urge enterprises involved to renovate production techniques and improve the environment, and to get more people informed of situations so as to strengthen public supervision over these industrial units.

These units will be given first consideration when the local governments allocate pollution treatment input, according to the deputy director in charge of pollution control.

The NEPA also asks the local environmental protection departments in each province, municipality or autonomous region to pick out the major industrial pollutant producers in their locality, and provide them with financial and technical support.

Wang told a press conference yesterday in Beijing that industrial pollution control is a long-term and arduous task in the country, since more than 70 percent of the pollution is from industries.

Although the country has achieved much progress in curbing industrial pollution, the situation remains severe because of the continued expansion of industry.

The country's coal consumption in the industrial sector increased from 400 million tons in 1985 to some 600 million tons in 1991, resulting in a deteriorating pollution from sulphur dioxide discharge and stockpiling of solid wastes.

Wang pointed out that means of pollution controls were limited on treating pollutants during China's environmental protection drive from 1972 to 1980, because of insufficient knowledge and facilities.

Through years of practice, the environmental administrators realized that as long as the pollutant producers shifted their responsibility onto the government or society and did not control pollution actively, no pollution would be controlled effectively.

In addition, funds for environmental protection were insufficient and pollution treatment technologies lagged behind the developed countries.

So, the national environmental departments set up more effective mechanisms to restrict pollution discharge and encouraged every unit to improve their pollution control work.

They also established guidelines which stipulate that pollution control must be promoted by intensifying environmental management, that the focal point of pollution control will be at the provincial level.

The Second National Conference on Environmental Protection in 1983 made environmental protection a fundamental national policy of the country.

Government To Launch Protection Program for Rare Animals

OW1006064793 Beijing XINHUA in English
0553 GMT 10 Jun 93

[Text] Beijing, June 10 (XINHUA)—The Chinese Government has approved a major wildlife program to protect rare animals such as the giant panda, the Chinese alligator and the Manchurian tiger.

Seven large-scale projects for conservation of rare animals are to be set up, said an official from the Ministry of Forestry.

Other rare animals and birds to be protected include the crested ibis, the south Chinese tiger, the eld deer, and David's deer, tarpan (a wild horse) and saiga (a kind of antelope), said the official.

"The projects are further steps to improve ecological conditions for the survival of these rare wild animals," he said.

"Most of them are endangered species in the world," the official said.

All these projects have been approved by the State Planning Commission, he said.

Last October China began a huge conservation project for giant pandas. There are plans to increase 13 to 27 panda protection areas in Sichuan, Gansu and Shaanxi Provinces. Only about 1,000 pandas exist in the world.

More than 5 million yuan (833,330 U.S. dollars) has been donated by people from home and abroad for the project up to now, according to the official.

China's wild animal protection drive has been ongoing since the early 1980s.

After a decade of efforts, the number of such rare animals and birds as giant pandas, crested ibis and eld deer has grown.

Some 110 giant pandas have been saved while the crested ibis has increased to about 30 from only seven found in 1981. The preservation effort has been helped by starting bases for protection, research and breeding of the ibis in Shaanxi Province.

The Ministry of Forestry plans to improve conditions for nesting, to establish more food bases and to expand the protection region for the crested ibis in years to come.

The central government and Anhui Province recently decided to spend 4.35 million yuan (725,000 U.S. dollars) in the second stage construction of a breeding and research center for Chinese alligators in Xuancheng County, Anhui Province.

On the wildlife issue China is cooperating with various countries and world organization.

Since 1985, China has introduced 20 tarpons, 39 David's deer and 10 saigas - all had earlier disappeared from this country - from Britain, the United States and Germany. It set up breeding centers for all of them in Xinjiang, Jiangsu and Gansu.

Additional Efforts To Curb Chemical Waste Pollution

40101015B Beijing CHINA DAILY (Economics and Business) in English 2 Jun 93 p 2

[Article by Zhang Yu'an, staff reporter: "More Curbs on Chemical Waste Are in the Works"]

[Text] China's chemical industry is vigorously trying to develop its environmental protection capabilities to further reduce industrial pollution.

An official of the Ministry of Chemical Industry said yesterday that it welcomes foreign co-operation and investment in developing and manufacturing environmental protection equipment.

At the same time, more pollution-creating factories will be upgraded with advanced technology or closed down.

The moves are designed to coincide with World Environment Day, which falls on June 5, said the ministry official, Yuan Fenyong.

The chemical industry is one of the country's major producers of waste water, waste gas and waste residue. The industry annually discharges about 6 billion cubic metres of waste water (20 percent of the country's total), 700 billion cubic metres of waste air (5 percent) and 35 million tons of waste residue (8 percent).

Thus, the ministry has been paying increasing attention to controlling pollution.

At present, the ministry has selected environmental protection as a major high-tech focus and its development will get top priority. It encourages foreign investment and technical co-operation.

The ministry has also decided to close down, by 1996, several caustic-soda production lines whose outdated techniques create pollution and to replace them with advanced technology.

The majority of the country's caustic-soda plants have adopted advanced production techniques using ion membrane technology, the official said.

Moreover, the ministry will build two or three large chromate plants, each with an annual production capacity of

10,000 tons, to replace several dozen small factories now in operation. The goals are to save energy, reduce pollution and raise efficiency.

Since June 5, 1973—the first World Environment Day—the ministry has invested more than 8 billion yuan (\$1.4 billion) in environmental protection.

With the hefty investment, Yuan said, pollution in the chemical industry has been greatly reduced.

For instance, the chemical industry in 1991 treated more than 3.15 billion tons of waste water, 47.08 billion cubic metres of waste air and 28.59 million tons of industrial waste residue. Meanwhile, more than 860 chemical factories have become pollution-free.

At the same time, the ministry has also installed pollution-control equipment in many plants. Using the new equipment, the chemical industry in 1991 discharged 1.3 billion fewer tons of waste water, 30 billion fewer cubic metres of waste air and 10 million fewer tons of waste residue than in 1973.

Global Environment Facility To Hold Meeting in Beijing

*OW2405114793 Beijing XINHUA in English
0934 GMT 24 May 93*

[Text] Beijing, May 24 (XINHUA)—The Global Environment Facility (GEF) will hold its fifth participants' meeting in Beijing on May 26, a GEF official announced here today.

At the meeting, representatives from about 60 governments will review the progress of GEF and discuss key institutional changes.

Replenishing the facility's resources is another issue topping the meeting's agenda, according to the official.

GEF was set up in late 1990 to provide grants to developing countries for environmental protection projects which mainly deal with global warming, pollution of international waters, destruction of biological diversity and depletion of the ozone layer.

The United Nations Development Program, the World Bank and the United Nations Environment Program act as the executives of the facility.

The Beijing meeting will review 13 new projects and discuss plans to restructure GEF's decision-making structure.

As the 1.3 billion U.S. dollars pledged for the three-year pilot phase will have been largely committed by the end of 1993, the fifth GEF meeting will hold a special session on May 25 to discuss the replenishment of the facility.

The GEF paper prepared for the meeting foresees that GEF's projects in the next 3-5 years will need funds between 2.8 and 4 billion U.S. dollars.

However, the agreement on the main aspects of the restructured GEF and its replenishment will be finally decided in Geneva in December this year, according to the GEF official.

During the 1991-93 experimental period, GEF supported four environmental projects in China, with a GEF grant of

around 52 million U.S. dollars. The projects involve fighting port pollution, controlling methane in coal mines in Shaanxi Province and a gas transmission system in Sichuan Province.

Guizhou Governor's Speech Marking World Environment Day

HK1406152493 Guiyang Guizhou People's Radio Network in Mandarin 2300 GMT 4 Jun 93

[Recorded speech by Guizhou Provincial Governor Chen Shineng]

[Excerpts] Comrades:

Today, the 5 June World Environment Day, is an important red-letter day which marks the common efforts of the people all over the world to protect the earth, the home of mankind. Let us celebrate it together. [passage omitted]

This year marks the 20th anniversary of the initiation of our country's environmental protection undertaking. Over the past 20 years, our country has developed a set of relatively sound laws and ordinances on environmental protection and a set of principles, policies, and administrative methods that have proved to be effective and suited to our national conditions. The concept of environmental protection, as a basic national policy, has gradually struck root in people's hearts and has been widely supported. Over the past decade or so since the reform and opening up, this province's gross domestic product has increased by more than 100 percent, whereas environmental quality and conditions have been largely maintained at the level of the early 1980's, with improvement in some aspects. This is a miracle widely acclaimed by the world. Comrade Xiaoping's instruction on seizing the opportunity to expedite development has been translated into concrete actions taken by the whole party and all the people. Seizing the historical opportunity, we have managed to rapidly change the face of this province where the Wu Jiang flows and the Miao Mountains stretch.

Our province's relatively good natural conditions and relatively large environmental capacity [as heard] offer us a very valuable technical condition for rapid economic development and an opportunity that must not be missed. Just like other parts of the country, our province's environmental quality and condition has remained basically stable over the past 10 years or more since the reform and opening up. This is largely due to the close attention paid by governments at various levels, more vigorous environmental administration, and enhancement of the sense of environmental protection among cadres and the masses throughout the province. In the future, as long as economic control is properly exercised, and vigorous measures of preventing and controlling pollution are taken, we will be able to more effectively tap the potential of an environmental capacity which is actually quite great. In this way, we will enjoy a great superiority in opening up to the outside world.

On the premise that our province's environmental resources are not damaged, we can boldly attract foreign capital, launch construction projects, and vigorously promote the development of township and town enterprises, as well as vigorously stepping up urban and rural construction. We

believe that the improvement of environmental conditions and the enhancement of the standard of environmental control will promote our province's reform and opening up and will also offer a good opportunity for rapid economic development.

Environmental protection and economic and social development complement each other. In the process of establishing socialist market economy, governments at various levels must truly take care of the environmental quality of their respective areas in accordance with the law. When it is linked with the government organizational reform and economic restructuring, environmental protection, as a basic government function, will become even more outstanding. We must further perfect laws and regulations, raise the standard of environmental protection, further develop and strengthen the system of environmental control, and improve work efficiency and service quality. Never should we lower the standards of environmental protection inspection. Meanwhile, we must attach greater importance to launching propaganda and education programs on environmental protection in society and cultivating fine social ethics among the broad masses so that they will take environmental protection as a glorious task and polluting and undermining the environment as a shameful practice, and so that all the people will more consciously join the ranks of environmental protection, thus providing good conditions regarding environmental resources for sustained economic and social development. [passage omitted]

Tibet Reported To Have No Radioactive Pollution

OW1206093393 Beijing XINHUA in English 0914 GMT 12 Jun 93

[Text] Beijing, June 12 (XINHUA)—The soil and water of the Tibet Autonomous Region in China have no artificial pollution from radioactive materials at all, still less nuclear contamination, according to a signed article carried in today's overseas edition of the "PEOPLE'S DAILY" [RENMIN RIBAO].

The article, entitled "Progress and Development in Tibet", said the Tibet plateau, a land with unique characteristics, is the biggest and highest plateau in the world. It has a complicated and fragile ecological environment which could not be restored once damaged.

It noted that it is the common goal of the whole society of the autonomous region to protect its environment while stepping up economic development.

The Regional Committee for Environmental Protection was founded in 1990 to strengthen governmental leadership over environmental work.

The Central Government of China invested 3.9 million yuan (about 600,000 U.S. dollars) to build an environmental supervision station in the region.

The station has set up three supervision centers on rivers and 27 centers to supervise and survey traffic noise.

According to the survey, the air in Lhasa, capital city of the region, contains less than 0.1 mm of sulfur dioxide per cubic

meter, below the state standard. There is no nitrogen oxide in the air. Suspended dust in the air is less than 0.4 mm per cubic meter, said the article.

The supervision and survey in three areas of Dagze county, Lhasa, Lhasa River and Yarlung Zangbo River have proved that the acid-base content, hardness and consumed oxygen by chemicals remain unchanged, the article stressed.

No pollution by heavy metal trace elements such as aluminum, zinc and copper exist in Tibet's rivers.

It said, in order to protect the environment, environmental protection departments of the region have taken a series of measures to strengthen the work.

The construction of numbers of key construction projects in the region such as the Yamdrok Lake hydropower station and an iron mine in Loka prefecture is made to abide by environmental protection law.

It has removed a garbage dumping ground near the Lhasa River to prevent pollution and set up sewage disposal systems in Lhasa.

The region has announced several regulations and management methods on environmental protection to rely on legal means in the work.

Lhasa Among Country's 'Least-Polluted' Cities
*HK2805144693 Beijing ZHONGGUO XINWEN SHE
in Chinese 0914 GMT 28 May 93*

[By correspondent Zhu Daian [2612 0108 1344]]

[Text] Lhasa, 28 May (ZHONGGUO XINWEN SHE)—According to the Tibet Autonomous Regional Environmental Monitoring Station, the ancient plateau city of Lhasa is one of China's least polluted cities, where the rivers are crystal clear and the air is fresh.

Tibet has paid great attention to environmental protection in recent years. Last year the state spent 3.9 million yuan on a new environmental monitoring station in Lhasa, created three air sample collection points in Lhasa city and Lhasa He, established three river water monitoring stations, and set up 27 traffic noise testing points to collect scientific data with a view to improving the environment.

The results show that the air above Lhasa contains less than 0.1 mg [milligram] sulfur dioxide, a toxic gas, for each cubic meter of air—far below the state standard—and no trace of nitrogen-oxygen compounds.

Results also show that there are no heavy metal or micro-element pollutants such as lead, zinc, or copper in Lhasa He; nor is there any radioactive pollution caused by human agents. Even the natural micro-radioactive pollution that occurs at high altitudes is at normal levels.

The source says that, to go one step further in cleaning up Lhasa's environment, this year Tibet will remove the waste disposal plant near Lhasa He, will construct a sewage farm in a suburb west of Lhasa city, and will plant more trees in an effort to green the city. It is also planning to spend 2.54 million yuan building a monitoring station in Xigaze in the west and Qamdo in the east to form a modern environmental monitoring system in Tibet.

INDONESIA

Environmental Issues Spark Antitropical-Wood Movement*93WN0432A Jakarta KOMPAS in Indonesian
16 Apr 93 p 10*

[Text] Environmental issues coming out of several nongovernmental organizations (ORNOP), especially abroad, have resulted in actions being taken against the use of tropical-wood products. One of the characteristics of this movement is that it always operates in the name of the "environment."

Engineer Bambang Soekartiko, head of the Office of Foreign Relations of the Department of Forestry, described this antitropical-wood movement, which has grown into a world-wide issue, at a seminar held yesterday entitled "Reforestation and the Environment" organized by the Banyumas Regional Government. Prof. Dr. Engineer Oemi Hani'in Soeseno, a member of the faculty at Gadjah Mada University's Forestry School, Yogyakarta, also spoke at the seminar. About 500 participants from 11 districts in Central Java took part in the one-day seminar in Purwokerto.

Bambang said that these organizations claim that the current condition of tropical forests, which is caused by widespread cutting and burning, is behind the increase in greenhouse gases. These changes in the amount of greenhouse gases, Bambang said, will produce a greenhouse effect, which will then raise global temperatures. Furthermore, quoting expert opinion, this global warming will produce a change in the world's climate.

In their efforts to oppose the use of tropical woods, including those originating in Indonesia, the ORNOPs of several advanced countries have mounted an out-and-out attack on Indonesian government policy for managing tropical forests.

They always make a connection between the management of tropical forests and the local population (or isolated ethnic groups), whom they consider victims of development and whose lives become more constricted, in that they lose their source of livelihood and their culture but do not gain any of the advantages of development. "This is what they usually use to attack Indonesian government policy for forest management," said Bambang.

Bambang said that the antitropical-woods movement always makes statements in the name of the environment. But in fact many of them are really tools for political propaganda. It must be admitted, however, that some of them are really concerned about the environment and they are usually trying to help solve the problem.

Bambang Soekartiko said that if it is allowed to happen, the antitropical-woods movement can really harm Indonesia and other tropical countries. This is especially true since wood products are Indonesia's second highest source of foreign exchange.

In her paper entitled *The Role of Educators and Rural Instructors in Continuing Initiatives to Reforest and Preserve the Environment*, Oemi Hani'in Soeseno threw more light on those efforts already announced by the government

to preserve the environmental balance. "It would only be proper for everybody to welcome these efforts and to take some real steps. The fact is that Indonesia still has a lot of land categorized as unproductive or critical," said Prof. Oemi Hani'in, who is also an administrator in Gadjah Mada University's Forestry School. In Banyumas alone there are more than 16,000 hectares of critical land.

Who is responsible for rehabilitating this land? "Everybody has to share the responsibility for the environment, which includes reforestation efforts. Young people, educators, and rural instructors have to be in the forefront," emphasized Prof. Oemi.

JAPAN

Government Releases 1993 White Paper on Environment**Tidal Wetlands Lost***OW1506011593 Tokyo KYODO in English
0037 GMT 15 Jun 93*

[Text] Tokyo, June 15 KYODO—The collapse of nonoperating undersea coal mines and land reclamation account for more than 75 percent of the loss of the nation's tidal wetlands since 1978, said the 1993 White Paper on the Environment released Tuesday [15 June].

The annual report said that Japan lost 4,076 of its 55,538 hectares of tidal wetlands recorded in 1978. The loss is equivalent to an area slightly smaller than Nerima or Otawards in Tokyo, or about 2.6 times the area of the island of Macao. The loss represents 7.33 percent of the area of tidal wetlands Japan had in 1978.

The White Paper said reclamation was responsible for the loss of 1,890 hectares, or 46.4 percent of the total loss. A total 1,181 hectares was lost from subsidence, mostly due to the collapse of old coal mines under the Ariake Sea in Kyushu, and 366 hectares was lost because of dredging, the White Paper said.

Tidal wetlands are home to migratory birds and waterfowl which feed on fish and other shellfish living in the areas. Wetlands are the subject of debate at a June 9-16 conference in Kushiro, Hokkaido, of parties to the Ramsar Convention—the convention on wetlands of international importance especially as waterfowl habitat. The convention defines tidal wetlands as areas of marine water where the depth at low tide does not exceed six meters.

The area lost is roughly equivalent to one-20th of the total area of nine wetlands, but 100 times the area of tidal wetlands that Japan registered with the convention bureau in Switzerland.

White Paper Represents 'New Philosophy'*OW1506011993 Tokyo KYODO in English 0030 GMT
15 Jun 93*

[Text] Tokyo, June 15 KYODO—Most Japanese companies that have departments dealing with the environment say they advise on policy, but have little impact on actual

production and product development, the Environment Agency said in an annual White Paper released Tuesday [15 June]. The 1993 White Paper on the Environment said 78 percent of companies have responded to public pressure since pollution became a key issue in the mid-1960s by showing some form of "concern" for the environment.

An Environment Agency survey in 1992, the first in 25 years of publishing white papers on the environment, showed that 33 percent of the nation's companies have set up internal departments to deal with environmental issues, it said. But whereas 71.5 percent of the departments have some influence over company policy-making when dealing directly with environmental matters, only 10.1 percent report having any influence over actual production, the White Paper said.

Companies saying they have some influence over production of new products accounted for 20.9 percent, while 30.5 percent said they have influence over research and development of new product lines. Companies reporting they had some influence over the annual budget accounted for 22.7 percent.

At a press briefing on the White Paper, which was approved by the cabinet Tuesday, Hikaru Kobayashi, director of the Environment Agency's Planning and Coordination Bureau, said the figures show environmental issues still have "little impact on the need or non-need for new products."

The White Paper also included a section devoted to the environment and operations of Japanese companies overseas, the first time for such a survey. It showed that of Japanese companies in Thailand and Indonesia, about 70 percent said they experienced no environment-related problems, 80 percent said they "understand" their host country's environmental laws, and 64 percent said they had met local environmental standards. Kobayashi, whose office was responsible for compiling the White Paper, said companies overseas report a strengthening of local environmental regulations.

The report also contributed a large section devoted to activities at home and factories that are responsible for the production of carbon dioxide (CO₂) emissions. A graph showed that the production and transport of vegetables in Japan is responsible for some 175,000 tons of carbon dioxide (CO₂) emissions and meat for 177,000 tons. The graph also showed that liquefied petroleum gas is responsible for the release of a hefty 4.13 million tons of CO₂ emissions.

Kobayashi said previous white papers have tended to rely on "moral persuasion without dictating numbers" to pressure consumers to lower CO₂ output. He said the 1993 White Paper cites the emergence of a "new philosophy" in regard to the environment.

"Until now, people were allowed to use the environment freely," he said. "But now they must give consideration to keeping the environment for future generations."

Tokyo Plans Long-term Aid for Asian-Pacific Environment

OW2805042693 Tokyo KYODO in English 0401 GMT 28 May 93

[Text] Tokyo, May 28 KYODO—Japan will draft a long-term plan to help protect the environment in the Asia-Pacific region through the next century, sources at the Environment Agency said Friday [28 May].

Under the program, to be known as "Eco Asia 21 Plan," the agency will pinpoint environmental priority tasks and provide concrete methods of technical and financial assistance to tackle them, the sources said.

The government is hoping to take initiative in world ecology conservation policies by making the project a remedy for countries groping for environmental protection with sustainable development, they said.

Japan will unveil the program after exchanging views with environment ministers in the region at the Economic Conference for Asia and the Pacific (Eco Asia) to be held on June 30 and July 1 in Makuhari, Chiu Prefecture.

The program will take about 2 or 3 years to put together and cover an area as far away as Russia and India to Australia and New Zealand. The program will run until 2030 or 2050, the sources said.

Health Ministry To Study Global Warming's Impact on Disease

OW1206041593 Tokyo KYODO in English 0325 GMT 12 Jun 93

[Text] Tokyo, June 12 KYODO—The Health and Welfare Ministry will conduct three years of research on the effects of global warming and ozone layer depletion on epidemic diseases, including AIDS and malaria, Ministry sources said Saturday [12 June].

The ministry is launching the project to help carry out a global action plan adopted by the Earth Summit in Brazil last year, the sources said.

Researchers will investigate the influence on multiplication of pathogens and the outbreak of diseases in the body from ultraviolet ray increases triggered by ozone layer destruction, they said.

The project will also investigate the impact of global warming on immunity to disease through genetic studies.

The ministry will start the "Heart 21" project as early as this month with researchers from the National Institute of Health, the National Cancer Center, and Tokyo University's Institute of Medical Science, the sources said.

The ministry intends to develop treatment or preventive measures against epidemic diseases from the research.

Ramsar Conference on Wetlands Underway in Hokkaido

Tokyo Pledges Money To Conserve Wetlands

OW1406144893 Tokyo KYODO in English 0158 GMT 10 Jun 93

[Text] Kushiro, Hokkaido, June 10 KYODO—The largest-ever international conference on wetlands entered its second day Thursday [10 June] in northern Japan with a pledge from Tokyo to provide money and conserve areas that are home to species of waterfowl.

Official ceremonies opening the convention in the city of Kushiro, on Japan's northernmost island of Hokkaido, were held in the second day because of Wednesday's wedding of Crown Prince Naruhito and a former diplomat, now Princess Masako.

The conference brought together signers of the convention on wetlands of international importance, better known as the Ramsar Convention after the Iranian city where the document was drawn up in 1971.

Parliamentary Vice Foreign Minister Koji Kakizawa expressed the Japanese government's commitment to contribute 10 million yen to the wetland conservation fund.

The fund was set up under the convention to help preserve threatened wetlands particularly in developing countries.

Taikan Hayashi, director general of the Environment Agency, said Japan is ready to play a leading international role in preserving nature by providing research, study and technical assistance.

Japan nominated five wetland areas to be registered at the convention, in addition to four it has already designated, and on Thursday officially registered the five new regions.

Minoru Inaba, governor of Shiga Prefecture in western Japan, said he expects the newly registered wetlands to be preserved so that swimming birds can live safely. Lake Biwa, Japan's largest lake located in Shiga Prefecture, is one of the five newly registered regions.

The 8-day conference, the fifth of its kind, has attracted the largest number of participants since the first conference was held in Italy in 1980 and is the first to be held in Asia.

Meeting Ends With Call for Recognition of Wetlands

OW1606081693 Tokyo KYODO in English 0653 GMT 16 Jun 93

[Text] Kushiro, Hokkaido, June 16 KYODO—The Ramsar conference ended Wednesday [16 June] with a call for greater recognition of the ecological and economic role of wetlands and greater funding for their preservation.

The weeklong conference of parties to the Ramsar convention adopted a declaration recognizing wetlands as vital not just as homes to waterfowl, but also as repositories of life forms essential to the earth's biodiversity.

More than 1,000 people from 110 countries attended the conference, including delegates from 73 of the convention's 77 member countries.

The declaration, known as "The Kushiro Statement," is the first international statement on the environment since the earth summit in Rio de Janeiro in June 1992.

The Ramsar convention, named after the Iranian city where it was first drawn up in 1971, is officially known as the Convention on Wetlands of International Importance Especially as Waterfowl Habitat.

The Kushiro Declaration says, "the importance of wetlands goes beyond the need for conservation of specific sites for their intrinsic value and diversity."

"The sustainability of wetlands is crucial to human life."

The declaration also notes that wetlands are important for flood control, maintenance of water quality and abatement of pollution, and support for fisheries, as well as for recreation and contribution to climatic stability.

The conference also agreed to call on multilateral development banks and development agencies to pay more attention to the conservation of wetlands, which receive only 0.4 percent of the world's official development assistance funding.

The meeting called on the global environment facility (GEF), set up after the earth summit, to fund wetland projects submitted via the biodiversity convention.

The biodiversity convention, drawn up at the earth summit and now signed or ratified by most countries which attended, is an action program aimed at preserving the earth's biological resources.

Daniel Navid, secretary general of the Ramsar convention, said the conference marked a "turning point" for wetlands conservation.

"Without important new resources for wetland conservation, the loss in wetland area and functions will not be halted," he said.

Host country Japan was the target of criticism at the conference from nonvoting representatives of several non-governmental organizations (NGOs) over its domestic and overseas record in wetlands preservation.

A final report on proceedings at a working committee on international cooperation retains an expression of concern voiced by Perez Olin of the African NGO, African Elephant Foundation, over the environmental impact of a project affecting Kenya's lake Nukuru which is home to a large number of flamingos.

The project, built largely with Japanese official development assistance, is opposed by many African environmental organizations who claim it could raise the level of water in the lake.

After heated debate between Japanese Government delegates and NGO representatives over development plans likely to affect Lake Utonai in Hokkaido, a report on

preservation of wetlands notes Japan's promise to support wetlands it has registered with the convention bureau in Switzerland.

Several Japanese NGOs told the conference that the development plans could have a detrimental effect on the lake's water quality.

As a result of opposition from Japanese delegates, a report on wise use of wetlands stops short of recommending environmental assessments be legally obligatory for member countries.

Instead, it cites such assessments as one of "several instruments" for achieving wetlands preservation.

The conference called on countries to set up national committees of government and NGO representatives to oversee plans for the preservation of wetlands, to encourage assistance to NGOs working for wetlands preservation, and to encourage countries to compile their own registers of wetlands.

The conference also recommended that criteria and guidelines be developed on the importance of wetlands for fishes so that fisheries will not impact on wetlands.

The delegates voted to accept an Australian offer to host the next conference in 1996.

MALAYSIA

Malaysia To Sign Climate Change Convention
BK2705102293 Kuala Lumpur BERNAMA in English
0835 GMT 27 May 93

[Text] Kuala Lumpur, May 27 (OANA/BERNAMA)—Malaysia has agreed to sign the framework convention on climate change originating from the Earth Summit held in Rio de Janeiro last year, Science, Technology and Environment Minister Law Hieng Ding said Thursday.

He said 157 other countries had also agreed to sign the convention.

The deadline to become a party to the convention was the end of next month, he told reporters here.

The convention needed to be ratified by at least 50 countries before it could be enforced, he added.

Law also said that he would be leading the Malaysian delegation to the Commission on Sustainable Development (CSD) meeting in New York on June 14-24, which Malaysia would be chairing.

TAIWAN

Government, Businesses Face Environmental Problems
OW2805223793 Taipei CNA in English 1636 GMT
28 May 93

[Text] Taipei, May 28 (CNA)—Reports on Taiwan's pollution problems are increasingly filling the pages of local newspapers. Even in the international news media the

"negative Taiwan experience" has in some cases come to overshadow the recognition of the nation's economic achievements.

A series of recent incidents reported in the local press may provide a picture of the mounting problem.

To name a few:

On May 1, hundreds of villagers from the area neighboring the Tashe Industrial Park in southern Taiwan began a 17-day encirclement of the petrochemical plants in the industrial zone to press for compensation for air and water pollution caused by plant emissions.

On May 5, Tainan Mayor Shih Chih-ming donated a piece of his own land that had once supported a fishpond to accommodate 3,000 tons of the city's garbage which neighboring townships of Tainan County had refused to accept, staving off a garbage war between the city and its neighbors.

On [words indistinct] Taipei Mayor Huang Ta-chou and Taipei County Magistrate Yu Ching had a conversation that lasted nearly three hours on environmental issues facing the island's largest population center. No resolution was made, however, of the controversy over waste soil dumping.

Increasing numbers of the 20 million people crowded onto this 13,885-square mile island are questioning whether the nation's economic development has come at too high a cost to environmental quality, as they have witnessed the deterioration of the living environment here. In addition to this growing local awareness, pressure from abroad has also alarmed authorities to take prompt action.

Professor Wang Chun-hsiu who represented Taiwan in the Earth Summit in Brazil last June said recently that Taiwan together with Japan and South Korea have been often accused as hazardous industrialized nations in Asia for the way they have sacrificed nature for industrial development. He pointed out that environmental problems have become the "negative Taiwan experience" scoffed at by the international media.

To avoid further deterioration of the environment and to clean up its image, Taiwan has doubled its efforts in addressing environmental issues in recent years. The Environmental Protection Administration under the cabinet is trying to promote environmental awareness by educating the public, knowing fully well that administrative efforts alone are not enough to solve pollution problems.

Many private organizations and foundations have also made environmental protection a major objective. The Junior Chamber of Commerce of the Republic of China [ROC] on May 27 sponsored an environmental protection meeting in Taipei while more than 6,000 members of the Junior Chamber International in the Asia-Pacific region were attending a regional conference in Taipei.

At the meeting, officials were invited to speak on the government's policy on environmental protection and natural resources conservation. Private groups were also present to discuss their anti-pollution efforts. The ROC

Jaycees expected that the participants at the meeting now have a more clear understanding that environmental awareness is growing in Taiwan.

Rhino Protection, Possible Trade Sanctions Under Discussion

UN Envoy To Study ROC's Trade Ban Efforts

OW2705155193 Taipei CNA in English 1453 GMT
27 May 93

[Text] Taipei, May 27 (CNA)—Special envoy of the United Nations Environment Programme (UNEP), Dr. Esmond Bradley Martin, will visit Taiwan June 2 - June 6 to study the protection of rhino horns here, Ling Hsiang-nung, vice chairman of the Council of Agriculture (COA) said Thursday [27 May].

In addition to gaining a firsthand understanding of the government's efforts on banning the trade in rhino horns and related products in Taiwan, Ling said Martin will also participate in a June 4 meeting sponsored by the COA to exchange views face to face with local officials.

The UN envoy's observations and report on the ROC [Republic of China] Government's performance with regard to the issue will carry great leverage with the US-based "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES), which might impose trade sanctions on Taiwan if the nation's efforts do not pass the organization's screening in September. The COA on Thursday morning called a special meeting aimed at coordinating efforts to eliminate illegal trade of rhino horns in advance of Martin's visit.

During Martin's stay here, the COA will submit an English reference explaining the Republic of China [ROC]'s efforts to ban the smuggling trade in rhino horns, and will also publicly burn 20 rhino horns confiscated by the government.

In an effort to further promote an understanding of the ROC's efforts on the issue by other nations, the COA also urged the American institute in Taiwan to convey Taipei's efforts and its achievements in protecting rhinos and other wildlife to Washington.

If the ROC Government fails to represent its concrete efforts and achievements in protecting wildlife to the world community in the next 2 months, the nation is doomed to be targeted by the cites for trade sanctions, Ling warned.

Should the sanctions be imposed, exports of more than 2,300 items of products would be seriously affected.

Faced by this threat, COA officials have appealed to the public not to underestimate the possible negative consequences on the nation's economy, as well as the nation's image in the international community if the final verdict goes against what Taiwan has done to protect wildlife.

Meanwhile, the nation has decided to attend the UN-sponsored "UNEP Conference Between the Rhinoceros Range States and Donors on Financing the Convention of

the Rhinoceros" slated for June in Kenya under the name of "Society for Wildlife and Nature R.O.C."

Taipei To Participate in Convention To Preserve Rhinos

OW2205053093 Taipei CNA in English 1555 GMT
21 May 93

[Text] Taipei, May 21 (CNA)—The Republic of China [ROC] will take part in a UN-sponsored meeting aimed at strengthening the protection of the rhinoceros, the Council of Agriculture (COA) reported Friday [21 May].

Two officials of the council will represent the ROC in the meeting dubbed "UNET [expansion not given] conference between the rhinoceros range states and donors on financing the convention of the rhinoceros" scheduled to be held in Zimbabwe on June 13. The officials will take the occasion to explain ROC Government efforts in stemming the illegal smuggling and trade of rhino horns into Taiwan.

In a related development, the ROC will send officials to attend the ninth conference of the "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES) slated to be convened in the United States later this year. The ROC, keen to show the world its determination and effort in protecting wildlife and endangered species, is anxious to join the CITES. The ROC took part in the cites's seventh and eighth conferences as an observer.

Meanwhile, COA officials disclosed that the CITES will call a committee meeting in September to assess the state of trade in rhino horn and related products in Taiwan. If the nation's efforts in fighting the problem of illegal trade in the endangered animal do not pass the committee screening, the CITES might impose trade sanctions on the ROC. If such measures were adopted, more than 2,300 Taiwan products, including orchid exports, would be seriously affected, the officials said.

COA Official To Discuss Rhino Horn Issue

OW1406093993 Taipei CNA in English 0756 GMT
14 Jun 93

[Excerpt] Taipei, June 14 (CNA)—Lin Shiang-nung, vice chairman of the Council of Agriculture, left for the United States Sunday [13 Sunday] in an effort to stave off a possible trade sanction by the United States for alleged trading of rhino horns and tiger bones.

Lin said prior to departure that his mission is to tell Washington of the efforts made by the ROC [Republic of China] in cracking down on illegal trading of rhino horns and the implementation of related conservation laws.

The Department of the Interior said last week that the Clinton administration will impose trade sanctions against the ROC if Taipei fails to ban trade in rhino horns by June 30. [passage omitted]

THAILAND

Industry Minister Opposes Heavier Industrial Penalties

BK2805023193 Bangkok BANGKOK POST in English
29 May 93 p 6

[Text] Khon Kaen—Heavier penalties for companies that violate factory control laws seemed unlikely yesterday when Industry Minister Sanan Khachonprasat said that such punishment might deter foreign investors.

"This is enough. If we punish them, who will want to invest here?" he said.

The industry minister yesterday inspected the Phoenix Pulp and Paper Co in Nam Phong District, which has been closed for 30 days pending investigations into allegations it had polluted the Phong River by releasing waste water. Maj Gen Sanan said officials had checked the oxygen level in the river and found the quality of water had returned to normal. He said the factory had also completed the building of four waste water treatment ponds which it is believed will help reduce the amount of polluted water in the nearby Huai Chot pond.

The Royal Irrigation Department will help the pulp producing plant dredge Huai Chot pond, which covers about 400 rai, to clean out sediment. Maj Gen Sanan said permission for the company to open two new plants would depend on whether it could prove the waste treatment systems were efficient and there would be no further pollution of the river.

Industrial Works Department Director-General Pricha Atthawiphat said yesterday Phoenix had not violated the regulations concerning the expansion of its operations because it had informed the department within 60 days as required by law. Mr Pricha said the department would have to inspect the waste water treatment system thoroughly and the condition of the surrounding water and air before deciding whether to allow the factory to reopen. He said he

also had to see whether there was sufficient evidence to take legal action against the factory for polluting the Phong River.

Phoenix chairman Sombun Nanthaphiwat has denied his factory polluted the river and claimed it had already improved the waste water treatment system according to Industry Ministry regulations. Mr Sombun claimed other factories along the Phong River had contributed to the water pollution.

The factory reportedly asked to lease the Huai Chot pond but this was rejected by the Royal Irrigation Department.

WESTERN SAMOA

Setting Up of Regional Environmental Program Delayed

BK1606071293 Melbourne Radio Australia in English
0500 GMT 16 Jun 93

[Text] The legal establishment of the South Pacific Regional Environmental Program, SPREP, is being delayed because of problems over the participation of American territories. The program was formally part of the South Pacific Commission based in Noumea, that has been formed into a separate body and its headquarters transferred to Apia in Western Samoa.

Western Samoa's prime minister, Tofilau Eti Alesana, told a meeting of SPREP that full legal recognition of the organization had been held up because of difficulties centering on the membership of American Pacific territories. Tofilau Eti said the territories themselves wanted full participation in SPREP, but the United States constitution (?prevents) this. France allows its territories full participation and the prime minister said French representatives have met with American officials several times in a bid to resolve the issue. Tofilau Eti said one possible way to overcome the problem was for SPREP to make its decisions through consensus rather than by formal voting. Other compromises are also being considered.

BULGARIA

Danube Town Receives Chemical Pollution*AU2705200293 Sofia BTA in English 1533 GMT
27 May 93*

[Text] Sofia, May 27 (BTA)—The town of Nikopol (on the Danube) has been receiving chemical pollution since the beginning of May, the local correspondent of BTA reported. The mayor of Nikopol has sent a report to the Council of Ministers insisting on urgent measures. The latest measurements of the air pollution show that the content of ammonia in the air is six times higher than the acceptable limit and that of hydrogen sulphide—three times higher.

This is the third Bulgarian town on the Danube to have been subjected to chemical pollution. The major pollutants are the Romanian plants in Giurgiu, Calarasi and Turnu Magurele. Air pollution of a Bulgarian town was reported for the first time in 1981. Despite Bulgaria's repeated protests, the problem has not been solved so far.

The condition of the environment along the Danube and the application of the Convention on Cooperation in Environment Protection, signed by the two countries and ratified by their parliaments, were discussed during the recent visit by Bulgarian Minister of Environment Valentin Bosevski to Romania. When Ruse received yet another portion of chemical pollution at the end of last month, Mr. Bosevski asked for an urgent meeting to consider the control over the application of the convention. It was agreed that the Romanian side would make its projects for pollution control facilities at the plants in Turnu Magurele, Giurgiu and Calarasi accessible for the Bulgarian specialists. The two sides also specified the status of the intergovernmental commission on the application of the convention.

SLOVAKIA

Fund Earmarked To Restore Environment at Military Sites*LD1506202793 Prague CTK in English 1852 GMT
15 Jun 93*

[Text] Bratislava, June 15 (CTK)—The Slovak Government today decided to earmark 180 million Slovak crowns (60 million USD) to repair damage inflicted (by Soviet troops) to the environment of the Sliac-Kokanova and Nemsova former shooting-ranges, Slovak Environment Minister Jozef Zlocha said today.

Zlocha told journalists after a cabinet meeting that after the withdrawal of Soviet troops from the former Czechoslovakia last April, Soviet military property was put under Czechoslovak administration. It was expected that money received from the sale of this property would go to improve the environment. Most former military installations on Slovak territory were put, however, at the disposal of the Czechoslovak Army and money for the liquidation of the damage was not found.

Zlocha said the environment at Sliac-Kokanova was harmed most, with damage estimates exceeding 600 million crowns

(20 million USD). Damage at Nemsova was put at 90 million Slovak crowns (3 million USD).

A communique issued by the Slovak Government says the environment was found seriously damaged at 14 places after the withdrawal of the Soviet troops from Czechoslovakia. It says that until the end of last year it was federal bodies which were engaged in liquidating the damage. However, at the beginning of this year all work at these places were halted. A lack of funds for restoration work and unsettled legal responsibility for ecological damage were cited as reason, the document says.

HUNGARY

Environmentalists Form New Green Party*AU0806113093 Budapest MAGYAR HIRLAP
in Hungarian 7 Jun 93 p 5*

[Correspondent's report: "The Environmentalists Formed an Election Party"]

[Text] The environmental protection movements have formed a new election party, the Green Alternative Federation of Hungarian Greens [ZAMZSZ], in order to represent more efficiently the cause of environmental protection.

The ZAMZSZ was established on 5 June with the participation of the domestic environmental and nature protection movements. This follows from the background that, after the change in its leadership following internal personal conflicts, the years-old Hungarian Green Party formed a position on basic issues that, according to the aforementioned movements, went against the interests of environmental protection. Those who created the new party hope to get into Parliament and represent the interests of the environmentalists in the next parliamentary elections.

In the course of their parliamentary activity, they want to ensure that environmental protection interests are considered in any decisive decision. At the founding meeting, the co-chairmen of the organization, Erzsebet Schmuck and Gyorgy Droppa pointed out that the ZAMZSZ is an organization independent of daily politics, an organization that represents the cause of environmental and nature protection. It was necessary to establish an independent green party because, although many parliamentary deputies claim to be environmentalists, they often subordinate their convictions to their party interests. Relations between the new party and the other political forces will be determined by their approach to the issue of environmental protection.

ROMANIA

Ecologist Movement Holds Congress, Ratifies Merger With PNE**Extraordinary Congress Held***AU1206185493 Bucharest ROMPRES in English
1446 GMT 12 Jun 93*

[Text] Bucharest ROMPRES, 12/6/1993—The Ecologist Movement of Romania (MER) convened in an extraordinary congress Saturday, 12 June, for the election of the new

leadership, the ratification of its merger with the National Ecologist Party (PNE), and the discussion of alterations to its statute and political platform.

An extraordinary congress had become imperative, MER Vice President Eduard Victor Gugui said, on account of the critical phase the ecologist movement is passing through, as a consequence of the party's failure in the 1992 September elections—when MER was left outside Parliament—and of several resignations by leading members.

Merger Validated, New Leadership Elected

*AU1606122093 Bucharest ROMPRES in English
0837 GMT 16 Jun 93*

[Text] Bucharest, ROMPRES, 16/6/1993—Romanian Ecology Movement has elected a new leadership hoping to get the party out of the crisis.

On Sunday [13 June], the idea of ecologist in Romania was given another chance under the impact of some young ecologists decided to change once and for all the destiny of a party facing difficulties: the Romanian Ecology Movement, runs a commentary in the Tuesday issue of the daily MERIDIAN. The extraordinary congress held in Bucharest over 12-13 June has proved that the ecology movement is still a potential force of the Romanian political scene even if after serious mistakes which marked the first 2 years of its existence it presently holds no seat in parliament.

Representatives of the 120 territorial branches and of Bucharest organizations have elected and validated the merger between the Romanian Ecology Movement and the

National Ecologist Party, which in the opinion of observers is opening the way for a unification of the entire ecologist movement in Romania.

The Romanian Ecology Movement elected businessman Eduard-Victor Gugui as president of the party and Academician Ioan Melescu as honorary president of that party.

BOSNIA-HERCEGOVINA

Tuzla Muslims To Hold Referendum on Environmental Disaster

*LD1106205893 Belgrade TANJUG in English
2009 GMT 11 Jun 93*

[Text] Bijeljina, June 11 (TANJUG)—The Moslem authorities in Tuzla, north-eastern Bosnia, have taken a suicidal decision to hold a referendum on whether or not to cause an environmental disaster in retaliation for receiving no humanitarian aid, Bosnian Serb military sources report.

Not a single truck of vital humanitarian aid has reached the area since clashes between Moslems and deaths escalated in central Bosnia a month ago, the Tuzla authorities said.

Some 600 trucks carrying humanitarian aid for Tuzla are being held up at Jablanica in northern Herzegovina by local Croat troops who are refusing to give them free passage to central Bosnia.

Before the Bosnian war broke out 14 months ago, Tuzla was a major centre of the chemical industry, and large quantities of chlorine and other toxic chemicals are still stored in its chemical plants.

The vocal Moslems have on several occasions threatened to spill the chlorine and cause a tremendous environmental disaster.

BRAZIL

First Nuclear Waste Dump in Goiania To Cost \$12 Million

PY2505130193 Rio de Janeiro O GLOBO in Portuguese 24 May 93 p 3

[Text] Brazil's first permanent nuclear waste dump will be built in Goiania. It was budgeted at \$12 million, but it still depends on the release of funds by the federal government. According to Laercio Vinhas, director of the National Nuclear Energy Commission (CNEN) Nuclear Radio-Protection and Security Department, the dump is expected to be finished by the beginning of 1995.

The permanent dump will be built 500 meters from the current dump, which is temporary and stores the residues of a cesium-137 accident. It will encompass an area of 1,200 square meters in Abadia de Goias, Goiania district, which has some 2,000 inhabitants, 13 km from the capital.

In November, the Sao Paulo company Jaakko Poyry Engineering will present the Environmental Impact Report (Rima) [Relatorio de Impacto Ambiental], a precondition demanded by IBAMA [Brazilian Institute for the Environment and Renewable Natural Resources] for the concession of the construction license. After that, the project will be discussed with the population and civilian organizations, which may even try to hinder the project.

The Goiania dump, however, will only solve the problem of storing the waste resulting from the cesium-137 accident, which totals some 3,500 cubic meters, between 4,000 and 6,000 metric tons. Once the Goiania residues are stored, the dump will be sealed forever. The remaining radioactive waste—1,645 metric tons today—will continue being stored each year in the provisional CNEN dumps in Angra dos Reis, Sao Paulo, and Pocos de Caldas.

It may take up to 300 years for the Goiania waste dump to reach tolerable radiation levels, Paulo Fernando Lavallo Heilbron explains. He is the supervisor of the Technical Division for the CNEN Nuclear Waste Department. The metric tons of Goiania radioactive wastes contain only 20 grams of cesium, according to the CNEN estimate. It might seem small, but Heilbron said a milligram of the substance is enough to kill a person.

"Just imagine a cholera virus. It is impossible to know how much it weighs. But 20 grams of those viruses (radioactive) can kill the world's entire population," Heilbron compared.

The theory of building dumps in more remote areas has been ruled out by the CNEN due to the cost and risks of transporting the residues. In total, the Goiania waste is stored in 1,347 metal boxes, 4,223 200-liter barrels, 10 ship containers, eight concrete boxes, and a box with what was left from the cesium source.

"Just to transport the metal boxes would require 336 trucks. In addition to the risks of accidents on the highway, everyone who came across these trucks would be exposed to radiation," Heilbron said.

CHILE

Measures To Reduce Pollution Level in Santiago Implemented

PY2805150893

[Editorial Report] Santiago Radio Chilena Network in Spanish 1100 GMT 28 May 93 reports that "a pre-emergency program has been implemented by the Metropolitan Environmental Health Service [Servicio de Salud Metropolitano del Ambiente] to reverse the pollution level in Santiago. It provides for additional traffic restrictions and a 24-hour paralyzation of about 150 factories."

Guido Girardi, director of the Metropolitan Environmental Health Service, stated that the pollution level in Santiago city has worsened due to the bad weather and the mud that accumulated following a recent mud slide.

COLOMBIA

Senators Comment on Creation of New Environment Ministry

PA2805162693 Santa Fe de Bogota Inravisión Television Cadena 1 in Spanish 1730 GMT 27 May 93

[Text] Finally, the environment issue manages to enter the country's political agenda. After 3 years of debates, the Environment Ministry will be given the green light on 27 May. Will it be a simple bureaucratic mechanism or will it be a powerful weapon to counter deforestation, pollution, and contamination?

[Begin Senator Luis Guillermo Sorzano recording] The Environment Ministry will not be another bureaucratic bunker.

This law will create a very powerful government instrument capable of managing the entire environmental structure that will allow the country to preserve its wealth. [end recording]

Although the new ministry will try to give coherence to an environmental policy that is fragmented, the path before it is not an easy one:

[Begin Senator Claudia Blum recording] The country currently has a very scattered environmental policy. We need to control, punish, and teach many technologies to prevent the destruction of Colombia's great biodiversity. [end recording]

Above all, the ministry will have to convince industry, nongovernment organizations, and the citizens of the urgency of their message.

[Begin Eduardo Uribe, national planning official, recording] The greatest incentive to preserve the environment is to secure for Colombians the right to participate in decisions pertaining to the protection of natural resources. [end recording]

Signs of environmental deterioration continue to be as dramatic as our biological wealth. We will find out whether the new ministry will have enough energy to monitor the behavior of, and punish those who damage the environment and whether the citizens will take on the challenge of protecting our natural treasure.

NICARAGUA

Diverse Sectors Share Blame for Deforestation

93WN0434A Managua BARRICADA in Spanish
8 May 93 p 11

[Commentary by Roberto Araquistain, Forestry Services director of the Institute of Natural Resources]

[Text] The deforestation of Nicaragua appears to be irreversible, and its consequences for the ecosystems are increasingly disastrous. Yet no comprehensive action has been proposed to curb this process. In various parts of the country, rural communities have been deprived of water sources because of the deforestation of their basins. Matagalpa, Nueva Segovia, Leon, and recently Nejapa Lake and the Rio Grande de Carazo, are a few examples.

It appears that an institution such as the Institute of Natural Resources (IRENA) is not entirely to blame. The problem is structural in nature, and it involves various agents: economic, political, and social, in both the private and public sectors. The Ministry of Agriculture and Livestock (MAG) is involved because it tolerates agricultural and livestock production that relies on land-intensive technology; the National Institute for Agrarian Reform (INRA) is involved because it continues to turn over forest land for agricultural use (deeds will be issued on 1 million manzanas of land soon); and the IRENA is involved because it is supposed to regulate forestry activities.

And the list goes on: the Ministry of Construction and Transportation (MCT), because it should do a better job of planning the construction of access roads; the Nicaraguan Institute of Energy (INE), because it does not take firewood into account in its overall energy policy; the Ministry of Economy and Development, because it governs economic policy and has not promoted greater forestry industrialization; the National Police, because it has not enforced existing laws against deforestation; the National Financial System, because it is pursuing a credit policy that finances deforestation as "improvements;" the Education Ministry, because it does not disseminate information or provide instruction on the economic value of forests; the National Assembly and the judiciary, because they do not pass new laws or facilitate the expeditious enforcement of existing laws, etc.

In the private sector, the problem involves direct producers who do not invest in new technology for raising crops or livestock, and who do not regard the forest as a source of revenue.

Forestry Production

Both the advance of the agricultural frontier and the increasing consumption of firewood and irrational use of forestry resources are based on the employment of land-intensive technologies. This type of production (land-intensive agriculture and livestock production, the inefficient use of natural forests for firewood, and highly wasteful lumber production) regards deforestation as a technology.

In Nicaragua, the Forestry Action Plan (PAF-NIC) proposes to stop the advance of the agricultural frontier and to reverse the trend through forestry production and increased agriculture-livestock activity (production that makes efficient use of land). The forestry production advocated by the PAF-NIC includes not only the exploitation and industrialization of the timber that already exists in our forests, but primarily and

fundamentally the planting of trees intended for firewood as a source of energy and for lumber as a raw material for industry.

The state, through the National Forestry Service (SFN)/Institute of Natural Resources (IRENA), governs, regulates, and promotes these activities. In this context, it promoted the planting of at least 2,000 hectares in 1992 by providing materials. This year, it expects to promote the planting of another 6,000 hectares by providing materials and credit through the Fondosilva. In addition, the regulations that will govern forestry activity are now ready.

Forestry production with technical direction in the field would increase the national supply of forestry products, reverse deforestation, create jobs, stabilize the agricultural frontier, boost the production of raw materials for national industry, and generate foreign currency from exports, all at a relatively lower cost than agriculture and livestock, keeping the respective time periods. Consequently, sustained forestry production is not only profitable, but also environmentally sound.

PANAMA

President Opposed To Barring Ships Carrying Toxic Waste

PA2305152393 Panama City EL SIGLO in Spanish
21 May 93 p 43

[Text] In a meeting with Greenpeace Organization representatives, President Guillermo Endara stated that "neither before nor after the year 2000, will Panama prevent the transit of ships carrying wastes through the canal."

President Guillermo Endara met with members of the Greenpeace ecological organization to discuss issues related to this organization's concern over the transit of ships carrying toxic waste through the Panama Canal.

Greenpeace is an organization that currently has more than 5 million members in charge of investigating ecology related issues. During the meeting with the president of the Republic, the Greenpeace representatives expressed their concern over the transit of radioactive material through the Panama Canal.

Greenpeace representatives Beatriz Barraza, Tom Clemen, and Ruy Goes pointed out that it is imperative and necessary to promote a regional agreement which in some way restricts the passage of ships loaded with toxic waste.

On the other hand, the president disclosed that Panama currently is facing two situations. First, traffic through the Panama Canal is in the hands of the U.S. Government until the year 2000. The second issue mentioned by the president is that after the year 2000, and once the canal management falls under Panamanian jurisdiction, the Neutrality Agreement will prevent barring any ship from transiting the canal.

In this respect, the president clarified that what could be done is implement strict measures forcing the countries that own the ships to submit to requirements related to transporting radioactive material.

In conclusion, President Endara indicated that Panama is interested in protecting the population in general, the country's natural resources, as well as the waterway.

INDIA

Ministry of Environment Issues Annual Report

93WN0426 Bombay *THE TIMES OF INDIA*
in English 14 Apr 93 p 3

[Text] New Delhi, April 13—A bill on the setting up of national environment tribunals, notifications to make environmental audit compulsory for all companies and impact assessment mandatory for all projects are among the highlights of the performance of the ministry of environment and forests in 1992-93.

According to the annual report of the ministry, the preparation of an environment impact assessment for all projects in both the public and private sectors has been made a statutory requirement. Similarly an environmental audit is a must for all companies and it has to be submitted while applying for the environmental clearance of any project.

Environmental audits of 56 industrial units belonging to 17 heavily polluting sectors were completed by the Central pollution control board in 1992. Ninety more units have been identified for further studies.

During the year, 247 projects were studied for their impact on the environment. Of these, 101 were granted environmental clearance, 29 were rejected and additional information was sought for the rest.

The signing of the conventions on biodiversity and climatic change and the Montreal Protocol to phase out the use of ozone-eating chlorofluorocarbons (CFCs) were the highlights of the ministry's dealings in the international arena.

Another interesting fact is the assistance provided by the Food and Agricultural Organisation (FAO) of the U.N. to introduce agro-forestry land-use system in Chindwara district of Madhya Pradesh. The minister of state for environment, Mr Kamal Nath, represents Chindwara in the Lok Sabha.

The forest conservation rules, 1981, was amended in 1992 to decentralise and streamline the examination of proposals for the diversion of forest land from state governments and project authorities. Out of 5,104 proposals received for forest clearance, 2,591 were approved.

A Central Zoo Authority was set up last year amending the Wildlife (protection) Act, 1972, to regulate the functioning various zoos in the country. The network of protected areas now comprises 75 national parks and 431 wildlife sanctuaries covering an area of 140,675.46 sq. km.

With the inclusion of Pench national park in Madhya Pradesh as a tiger reserve, the number of such sanctuaries has increased to 19, covering over 29,716 sq km of forest area. The 20th anniversary of the starting of the "project tiger" was celebrated with an international symposium on this jungle cat.

The state of forest report, 1991, a compilation of the third assessment of forest cover, was published last year. The report shows the forest cover was now 63.92 million hectares, an annual increase of nearly 28,000 hectares over the previous survey.

The Zoological Survey of India surveyed 72 districts falling under different ecosystems and the national zoological collections were enriched by the addition of 20,688 identified specimen pertaining to 2,884 species, including 124 new ones, in 1992.

The ministry set up a national afforestation and eco-development board to promote afforestation, tree-planting, eco-restoration and eco-development activities. This follows the transfer of the national wastelands development board to the ministry of rural development last year.

About the Ganga Action Plan (GAP), the report said 192 of the 261 approved schemes were completed so far. Eight of these projects are in Uttar Pradesh, 35 in Bihar and 77 in West Bengal. Out of the 264 polluting industries which discharge their effluents into the Ganga and its tributaries, 68 grossly polluting units have been monitored for the installation of effluent treatment plants.

The efficiency of GAP schemes on people's health is being evaluated and results available so far indicate that there is a decreasing trend in the incidence of water-borne diseases such as diarrhoea, helminthic infection, skin diseases and respiratory tract infections.

IRAN

Measures Needed To Curb Environmental Offenders

93LA0052Z Tehran ABRAR in Persian 22 Apr 93 p 9

[Text] In order to preserve and protect the valuable natural resources of our country, it is necessary to deal decisively with violators of the natural resources laws.

The director of the Office of Natural Resources of the city of Dezful, in an interview with IRNA reporter, made this announcement and said: One of the great problems in protecting natural resources is indecisiveness in examining violations. To prevent the increase of violations and the insolence of profiteering individuals, he emphasized the necessity of establishing special courts and also the reestablishment of a forest guard.

The head of the office of natural resources of the city of Dezful referred to in the mountainous and hard access of the Sardasht region of Dezful, where various trees grow and also green pastures exist, and said: Due to the lack of sufficient forces and needed resources, the valuable trees of the region, such as the old "oat" trees, are cut down and taken away by profiteering individuals.

Stating that in 1371 only 125,000 tomans in fines was collected from profiteering individuals who destroy the natural resources, he said: They are fined 30,000 rials for every hectare they destroy, whereas the approximate value of every hectare is more than a million rials.

In conclusion, the head of the Office of Natural Resources of the City of Dezful asked for an increase in fines in order to reduce the destruction of natural resources.

ISRAEL

National Radiation Monitoring System Includes Five Stations

TA1006064593 *Jerusalem Qol Yisra'el in Hebrew*
0400 GMT 10 Jun 93

[Text] Over the past few weeks, the Environment Ministry has established a national monitoring system to track radioactive emissions. The system includes five measuring stations in Kefar Hasidim, Tel Aviv, Jerusalem, Ramat Hovav, and Dimona. This last station, which is currently being completed, will be situated near the Nuclear Research Center. This was reported last night by Environment Minister Yosi Sarid after a media correspondents tour inside the Research Center.

Our correspondent Shulamit Schmerling notes that from now on, there will be regular periodic inspections and that samples and measurements will be taken from the vicinity of the Nuclear Research Center. The general public will have free access to the results of these inspections, which will be published.

Radioactivity Near Egyptian Border Five Times Above Norm

No Danger Posed

TA1406084393 *Jerusalem Qol Yisra'el in Hebrew*
0700 GMT 14 Jun 93

[Text] Radioactivity five times higher than the acceptable norm has been detected in the water well at Nizzana, near the Egyptian border, but experts contend that it does not pose any danger. Dr. Lita'i of the Atomic Energy Commission told our correspondent Shulamit Schmerling that the water in Nizzana does not pose any danger whatsoever.

Because of its salinity, this water is only used for irrigation. Checks of agricultural crops in the area failed to yield any findings. Dr. Lita'i added that checks of all the water wells in the Negev mountains are currently under way.

Said Caused by 'Natural' Radium

TA1506084393 *Jerusalem THE JERUSALEM POST*
in English 15 Jun 93 p 12

[Report by Liat Collins]

[Text] Natural radium is the source of the radioactivity detected at the Nizzana One water shaft and reported in the Hebrew press yesterday, according to Atomic Energy Commission officials.

Tests of the water at the shaft, near the Egyptian border, showed high alpha and beta levels of radioactivity. The water tested is used only for agriculture, according to Meqorot [Israel water company] officials who had requested the tests. Meqorot tested the waters at a depth of about 700 meters in November 1992 and did follow-up tests this February, both showing unexpectedly high levels of radioactivity, according to the news reports.

"The source of radiation at Nizzana One is natural, from radium. Tests carried out on samples and fish found (radiation) levels much lower than the standard permissible levels and are no cause for concern," said Me'ir Goldberg, deputy spokesman for the Atomic Energy Commission.

"No radioactive waste was ever buried at the site. The only site dealing with radioactive waste, according to the strictest international standards, is the national site for radioactive waste at the Negev Nuclear Research Center," he added. Environment Minister Yosi Sarid also said the matter was no cause for concern, and reassured the public that "in no possible way was the radiation found at the site connected with the Negev Nuclear Research Center (Dimona)."

RUSSIA

Nuclear Waste Pollution of Environment Detailed

OW1006092993 Moscow Russian Television and Dubl Networks in Russian 0500 GMT 19 May 93

[By A. Arkhipov; from the "Dalniy Vostok" program]

[Text] Ecological catastrophes, a direct consequence of man's misuse of technological progress and scientific achievements—which are designed to benefit man, come crashing down at an increasing rate—not only upon nature—but also on the heads of those who use the fruits of man's search, experimentation, errors and blunders during the past millennium. [video shows smokestacks issuing smoke; cuts to show heavy oil spill; cuts to views of a harbor with naval ships in the background; cuts to view of barbed wire fencing with a "dangerous area, no access" warning sign attached]

The discharge of many tonnes of heavy oil and impurities into rivers, seas and oceans, the pollution of the atmosphere and other inconveniences of a technological civilization—sadly have become habitual. A relatively new problem is making itself more conspicuous every day, the recycling of nuclear waste and numerous radioactive graveyards scattered over Russian territory; these are guarded so ineffectually that it is not always possible to notice them. The unique natural beauty of Kamchatka, along with many other sights, can also boast of having places where it is dangerous to remain for any length of time. [video shows view of polluted harbor water, then cuts to show G. Voronin, deputy chairman of the State Committee for Defense Industries being interviewed in Moscow]

[Begin Voronin recording] The issue of nuclear waste graveyards has been raised not just by the Greens, but by the [word indistinct], and so on. Everyone understands how difficult it is to solve this problem universally, not just in one area. All of these graveyards are filled to overcapacity. We do not have any graveyards which can be said to comply with IAEA standards. This is a national problem, and this issue has been dissected by scientists and so on down to a molecular level. The issue comes down to money. This poor unfortunate budget, this large pie being apportioned among thousands of problems is where, of course, the difficulty lies. I consider that the country has no way out. The issue of recycling waste and the issue of graveyards has to be decided before any new vessels or ships are built, because it is useless to continue this way. If we do not salvage nuclear submarines and continue to build new ones, this will all accumulate.

I will nevertheless continue to resolve these issues—that is my duty. Incidentally, I am submitting these issues at the Supreme Soviet—our task is to show the situation and the figures and the estimates of what it would cost to somehow individually account for these items in the budget. When these items are lumped together in general figures it is more difficult to extract the money to fund them, so we want to list these national problems as individual budget items. [end recording; video shows 'entry forbidden' warning sign, rusty

44-gallon drums, then cuts to show unidentified correspondent interviewing Yu.A. Leontyev, senior fishing inspector on Sakhalin]

[Begin Leontyev recording] We are on the property of the No 2 bread plant, which belongs to Kartsov, but the plant itself is on the left bank of the Krasnoselskaya River, and I have discovered this disgraceful state of affairs. Waste oil is brought here in barrels—first of all they should have a bordered, asphalted area surrounded by a gutter—and they simply unload it here as fuel for this boiler. So they unload, the oil spills, and the contents flow out toward the river. While it wasn't raining there was time to cover the oil with sand—and you can see fresh traces of oil still running on the top here. [video shows open holding area within a factory compound containing oil-coated 44-gallon drums, cuts to show oil on the ground partially covered with sand, dirty river water]

If 12.5 grams of oil gets into the reservoir, this means that 1000 [word indistinct] of living water, dies. In addition to this, there is scrap metal, oil soaked rags and sawdust lying around. People do not seem to understand that if they spill something they should clean it up right away. More than 855 tonnes of oil products are being dumped into our rivers throughout the oblast. It costs a lot to acquire these oil products—even for fuel purposes. We do not have sufficient fuel for the TETs [Heating and Electric Power Station], for our boilers, or our industrial enterprises. So why should we dump this good stuff into the rivers, poison the fish and subsequently our own lives, when these rivers feed our water supplies? [end recording]

Statute on Issuing Permits for Handling Nuclear Materials

Text of Statute

93WN0457A Moscow ROSSIYSKIYE VESTI in Russian 10 Jun 93 pp 5, 6

[Statute on Procedure for Issuing Temporary Permits of the Russian Gosatomnadzor for Activities Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them]

[Text]

1. General Provisions

1.1. Temporary permits of the Russian Gosatomnadzor [Committee for the Supervision of Nuclear and Radiation Safety] for activities associated with producing, handling and using radioactive substances and articles made from them are issued on the basis of the Statute on the Russian Gosatomnadzor, approved by Order No 283-rp of the president of the Russian Federation dated 5 June 1992 and Edict No 1355 of the president of the Russian Federation dated 12 November 1992 "On State Supervisory Bodies."

1.2. This Statute on the Procedure for Issuing Temporary Permits of the Russian Gosatomnadzor for Activities Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them (referred to

hereinafter as the Statute) establishes the procedures associated with issuing temporary permits for the following forms of activity:

- producing oxides of natural uranium (thorium);
- storing radioactive wastes from producing oxides of natural uranium (thorium);
- using radioactive substances to produce radioactive isotope sources and/or radiation equipment;
- using nuclear materials to produce radioactive isotope sources and/or radiation equipment;
- processing radioactive wastes for the purposes of storage and burial at an enterprise specializing in handling radioactive wastes;
- storing and/or burying radioactive wastes (including depleted radioactive isotope sources and radiation equipment) at an enterprise specialized in the handling of radioactive wastes;
- terminating the activities indicated above at facilities presenting a radiation danger (maintaining facilities in preserved state, decontaminating them, restoration of their sites);
- carrying out scientific research and/or experimental and design (planning) work using radioactive substances, nuclear materials and articles made from them with the purpose of developing the technology (the products) of the production operations indicated above.

1.3. This Statute shall remain in effect until enactment of statutes on the procedure by which the Russian Gosatomnadzor will issue licenses for the appropriate forms of activity.

1.4. This Statute applies to the issue of temporary permits to enterprises that had been carrying out activities indicated in Article 1.2 prior to its enactment, and to enterprises intending to begin this activity during the effective period of this Statute.

1.5. Issue of a temporary permit is based on:

- an evaluation of the safety of the activity applied for, on the basis of an examination of documents supporting the application and an inspection carried out at the enterprise;
- establishment of the conditions in which the temporary permit will be effective, including requirements on ensuring radiation safety in the course of the enterprise's performance of activity permitted to it.

1.6. The temporary permit is an official document which:

- certifies the enterprise's right to engage in the activity indicated on the temporary permit;
- establishes the conditions that must be fulfilled for the temporary permit to remain effective.

1.7. A temporary permit is issued separately for each of the forms of activity indicated in Article 1.2.

When such a temporary permit is in possession, a separate permit is not required for the following types of work carried out by an enterprise engaging in activity indicated in Article 1.2:

- using radioactive substances in apparatus for industrial measurements;
- carrying out radiographic work using radioactive substances for quality control of equipment and products;
- monitoring the radiation situation;
- transporting radioactive substances, articles made from radioactive substances, and radioactive wastes;
- storing radioactive substances, articles made from radioactive substances, and radioactive wastes.

The temporary permit must indicate the types of work carried out by the enterprise in the course of its permitted activity.

1.8. The production complexes, production sections, shops, storage facilities, and installations or other objects belonging to the enterprise at which permitted activity may be carried on by the enterprise are indicated in the temporary permit.

1.9. A temporary permit is issued to an enterprise established in accordance with the RSFSR law "On Enterprises and Entrepreneurial Activity," regardless of forms of ownership, which possesses, in accordance with policy established by legislation of the Russian Federation and with the right of full business control, and/or rents property necessary for activities associated with producing, handling and using radioactive substances and articles made from them, and if the enterprise:

- has appropriately trained personnel certified to do the work;
- observes the principles, criteria and requirements of radiation safety that the Russian Gosatomnadzor establishes on the basis of its competency through regulations and rules, resolutions, guidelines and the conditions of the effectiveness of the temporary permit;
- has a radiation safety service, and develops and implements measures to heighten radiation safety;
- observes the requirements of accounting for and monitoring radioactive substances, and ensures fulfillment of the requirements of their physical protection;
- furnishes information to the Russian Gosatomnadzor pertaining to the indicated activity, in a volume and at times established by the Russian Gosatomnadzor.

1.10. A temporary permit remains in effect throughout the entire period indicated on it, if the Russian Gosatomnadzor does not suspend or annul the temporary permit.

1.11. The temporary permit is annulled when the enterprise is liquidated or reorganized.

2. Application for a Temporary Permit

2.1. In order to obtain a temporary permit for activities indicated in Article 1.2, an enterprise submits an application to the Russian Gosatomnadzor and to the Russian Gosatomnadzor's Regional District Administration at the location of the activity for which the permit is applied for

(referred to hereinafter as the Regional District Administration of the Russian Gosatomnadzor).

The application is submitted separately for each activity indicated in Article 1.2.

2.2. The following documents must accompany the application:

- a request for a temporary permit of format shown in Attachment 1;
- a copy of the enterprise's state registration document;
- a copy of the enterprise's charter;
- copies of documents confirming the right of ownership of, right of complete business control of, and/or the lease on property necessary for the activity applied for;
- a copy of a document confirming appointment of the enterprise director and his rights;
- the set of documents substantiating the application, listed in Attachment 2;
- a guarantee to pay the expenses of scientific-technical expert examination of documents supporting the application.

2.3. Documents are filled out in accordance with the established requirements, while reporting and reference documents must be signed by the enterprise director. The signature is authenticated by the enterprise seal.

2.4. The application is submitted to the Administration for the Supervision of Radiation Safety of the Russian Gosatomnadzor so that the submitted documents could be checked for their correspondence to content and format requirements.

2.5. Within 30 days of the date of submission of the application to the Russian Gosatomnadzor, the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor checks the submitted documents and sends written notice of receipt of the application for examination or its rejection to the enterprise and to the Regional District Administration of the Russian Gosatomnadzor.

2.6. The notice is signed by the chief of the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor.

The notice and application are stored on file by the indicated administration for 10 years.

2.7. The Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor sends a list of representatives of the central administration of the Russian Gosatomnadzor that are to participate in a commission conducting an inspection at the enterprise to the Regional District Administration of the Russian Gosatomnadzor together with the notice of receipt of the application for examination.

2.8. The reason for rejection is indicated in notices sent regarding a rejected application.

2.9. Examination of an application may be denied:

- if the materials of the application do not satisfy the content and format requirements;

- if the activity applied for is not foreseen by the enterprise's charter.

2.10. When the materials of an application fail to satisfy established requirements, the Russian Gosatomnadzor may establish a time period during which additional materials may be submitted.

2.11. Additional application materials are sent and examined according to the same procedure as the application.

3. Conducting the Inspection

3.1. An inspection is conducted at the enterprise with the purpose of verifying presence and sufficiency of conditions necessary for the enterprise to safely perform the activity for which it is applying.

3.2. The inspection at the enterprise is organized by the Regional District Administration of the Russian Gosatomnadzor.

3.3. The inspection at the enterprise is conducted within 2 months from the date of receipt of the notice of receipt of the application for examination by the Regional District Administration of the Russian Gosatomnadzor.

3.4. The chief (deputy chief) of the Regional District Administration of the Russian Gosatomnadzor publishes an order regarding conduct of an inspection at the enterprise on the basis of the notice of receipt of the application for examination.

3.5. The goal and objectives of the inspection are determined, the chairman, deputy chairman and staff of the inspection commission are approved, and the procedure for drawing up the inspection program and the time for submitting it, the starting and ending times of the commission's work and the deadline for submission of the commission's act are established in the order.

3.6. The inspection program is approved by the chief (deputy chief) of the Regional District Administration of the Russian Gosatomnadzor.

3.7. Representatives of local bodies of government and administration, state public health surveillance agencies and nature conservation agencies at the place where the activity applied for is to be conducted may be asked to participate in the inspection with the consent of the directors of the indicated bodies.

3.8. The commission draws up an act on the basis of the inspection results, which must contain:

- the results of inspecting the organization and conduct of work to ensure the safety of the applied-for activity;
- a list of revealed violations of the requirements of radiation safety regulations and rules;
- an analysis of the correspondence of the actual state of the organization and conduct of work at the enterprise to the materials of the application;
- a conclusion regarding presence and sufficiency of conditions necessary for safe conduct of the activity applied for by the enterprise;

- a recommendation on possible issue of a temporary permit to the enterprise for the activity for which it is applying;
- proposals on including, in the conditions of the temporary permit, requirements on ensuring radiation safety by the enterprise in its conduct of the applied-for activity.

3.9. Within 10 days after conclusion of the work of the commission, the chief (deputy chief) of the Regional District Administration of the Russian Gosatomnadzor forwards the act to the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor and to the enterprise.

4. Examination of the Application

4.1. Examination of the application materials is organized and carried out by the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor with the assistance of the Scientific-Technical Center for Nuclear and Radiation Safety of the Russian Gosatomnadzor and the Regional District Administration of the Russian Gosatomnadzor.

4.2. The Administration for Supervision of Nuclear and Radiation Safety of Enterprises of the Fuel Cycle of the Russian Gosatomnadzor and the Administration for Supervision of Guarantees of Nonproliferation of Nuclear Technologies, Materials and Their Physical Protection of the Russian Gosatomnadzor are asked to assist in examination of the materials of an application for activity that includes handling and use of nuclear materials.

4.3. The application materials are examined by a deadline established by the deputy chairman of the Russian Gosatomnadzor, within 6 months from the day notice of receipt of the application for examination is sent to the enterprise.

4.4. The following are determined during examination of the application materials:

- correspondence of the production procedures utilized to the requirements of the regulations and rules of radiation safety;
- sufficiency of organizational and technical radiation safety measures;
- presence and effectiveness of the system for ensuring quality and reliability of products;
- presence of the corresponding system for storage, accounting, control and physical protection of radioactive substances;
- presence of the corresponding system of organizational and technical measures regarding the handling of radioactive wastes;
- the list of personnel at facilities at which the applied-for activity is to be conducted, the qualifications of these personnel, and the personnel training and certification system;
- presence of the necessary engineering and technical support to the activity applied for;
- possession, in the established cases, of Russian Gosatomnadzor permits for the applied-for activity by

enterprises, organizations and other legal and physical persons doing jobs for and rendering services to the enterprise in support of the performance of the activity applied for;

- preparedness of accident prevention measures and of plans for accident recovery efforts;
- presence and sufficiency of financial, material, technical and other resources to support the activity applied for, to eliminate the consequences of possible accidents and to compensate for possible radiation damage.

4.5. In the course of examination of the application materials, decisions may be adopted regarding the need:

- for having the enterprise submit additional documents in support of the applications;
- for carrying out scientific-technical expert examination of the safety of the activity applied for, on the basis of documents supporting the application.

The Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor notifies the enterprise regarding adopted decisions and establishes the deadlines and procedures of their fulfillment.

4.6. Scientific-technical expert examination is carried out on the basis of an agreement with the enterprise by an organization (enterprise) possessing a Russian Gosatomnadzor permit to conduct expert examination of materials and documents with the purpose of evaluating the safety of the corresponding facilities and production operations (technologies) presenting a radiation danger.

4.7. The technical assignment to conduct a scientific-technical expert examination is drawn up by the organization (enterprise) that is to carry out the expert examination.

The technical assignment is coordinated with the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor and the Scientific-Technical Center for Nuclear and Radiation Safety of the Russian Gosatomnadzor, and it is approved by the director (deputy director) of the organization (enterprise) conducting the expert examination.

4.8. A report which must contain the following is drawn up on the basis of the results of the scientific-technical expert examination:

- an analysis of the documents supporting the application, and the results of mathematical and experimental verifications of the submitted justifications;
- conclusions regarding the authenticity and sufficiency of submitted justifications;
- a recommendation on the possibility for issuing a temporary permit to the enterprise for the activity for which it is applying;
- proposals on including, in the conditions of the temporary permit, requirements on ensuring radiation safety during performance of the activity for which the enterprise is applying.

4.9. The report is approved by the director (deputy director) of the organization (enterprise) that carried out the scientific-technical expert examination, and it is sent to the

enterprise, to the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor, to the Scientific-Technical Center for Nuclear and Radiation Safety of the Russian Gosatomnadzor and to the Regional District Administration of the Russian Gosatomnadzor.

4.10. In the event that a scientific-technical expert examination is carried out, the deadline for examining application materials may be extended by a decision of the deputy chairman of the Russian Gosatomnadzor.

4.11. The Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor draws up a conclusion on the application on the basis of an examination of the application materials, the inspection act and the report of the scientific-technical expert examination. This conclusion contains the results of the evaluation of the safety of the activity applied for and proposals on the possibility for issuing a temporary permit or denying its issue, with the reason for the rejection indicated.

Drafts of the temporary permit and of the conditions of the temporary permit are appended to a conclusion proposing possible issue of the temporary permit.

A draft of the rejection notice, with the reason for rejection indicated, is appended to a conclusion proposing rejection of the issue of a temporary permit.

4.12. The conclusion on the application is approved by the deputy chairman of the Russian Gosatomnadzor. The conclusion on the application, the inspection act and the report on the scientific-technical expert examination are stored in files of the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor for 10 years.

4.13. Complaints against bodies of the Russian Gosatomnadzor that examine applications and conduct measures associated with this are submitted by the enterprise in the name of the chairman of the Russian Gosatomnadzor.

The Russian Gosatomnadzor communicates the results of an examination of a complaint to the enterprise no later than 20 days from the moment of its receipt.

5. Issue of a Temporary Permit

5.1. The decision to issue or deny issue of a temporary permit is made by the chairman of the Russian Gosatomnadzor on the basis of the approved conclusion on the application.

5.2. The following are grounds for denial of a temporary permit:

- a statement in the conclusion on the application regarding insufficiency or absence of conditions necessary for safe performance of activity by the enterprise for which it is applying;
- presence of information in the application that is distorted or not authentic.

5.3. The temporary permit or the notice of denial of a temporary permit is signed in four copies by the chairman of the Russian Gosatomnadzor. The signature is authenticated by the seal of the Russian Gosatomnadzor.

5.4. The temporary permit is registered with the Affairs Administration of the Russian Gosatomnadzor in a special journal. A temporary permit is invalid if it has not been awarded a corresponding registration number.

5.5. The Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor sends a temporary permit or a notice of denial of its issue to the enterprise, to the Affairs Administration of the Russian Gosatomnadzor and to the Regional District Administration of the Russian Gosatomnadzor within 15 days of its signing.

5.6. The format of the temporary permit is shown in Attachment 3.

5.7. One copy each of the temporary permit is stored for 10 years after it expires or it is annulled:

- with the Affairs Administration of the Russian Gosatomnadzor;
- with the Administration of Supervision of Radiation Safety of the Russian Gosatomnadzor;
- with the Regional District Administration of the Russian Gosatomnadzor at the place where the permitted activity is carried out;
- with the enterprise.

5.8. The Regional District Administration of the Russian Gosatomnadzor sends a copy of the temporary permit to the inspection office responsible for direct supervision over fulfillment of the conditions of the temporary permit.

5.9. The enterprise sends a copy of the temporary permit to the facilities at which the enterprise carries out its permitted activity.

5.10. The Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor submits written notification regarding the issue or denial of the temporary permit to the body of executive government that had registered the enterprise and the body of state public health surveillance that had issued the public health certificates granting the enterprise the right to work with sources of ionizing radiation and certificates on transportation resources.

5.11. A decision by the Russian Gosatomnadzor regarding issue of a temporary permit may be appealed in accordance with the established procedure in court organs of the Russian Federation.

6. Conditions of the Temporary Permit

6.1. The conditions of a temporary permit are attached to the temporary permit and are an inseparable part of it.

6.2. The conditions of a temporary permit are worded by the Administration for Supervision of Radiation Safety of the Russian Gosatomnadzor.

6.3. Disputes arising regarding the wording of the conditions of a temporary permit are examined by the deputy chairman of the Russian Gosatomnadzor.

6.4. The conditions of a temporary permit are signed by the chief of the Administration for Supervision of Radiation

Safety of the Russian Gosatomnadzor. The signature is authenticated by the Russian Gosatomnadzor's seal.

6.5. In the event that previously unknown factors influencing safety are revealed after a temporary permit is issued, or if the enterprise so requests, the Russian Gosatomnadzor may correct the conditions of the temporary permit.

The procedures for correcting the conditions of a temporary permit are established by the Russian Gosatomnadzor.

6.6. An enterprise that has received a temporary permit is obligated to notify the Russian Gosatomnadzor regarding any violations of the conditions of the temporary permit, and regarding accidents and incidents occurring during the performance of the permitted activity.

6.7. In the event that the enterprise violates the conditions of the temporary permit, the Russian Gosatomnadzor may suspend the temporary permit until such time that the revealed violations are corrected, or annul the temporary permit.

In this case the enterprise is obligated to terminate the permitted activity, while continuing to bear full responsibility for ensuring radiation safety.

6.8. Transfer of the rights to engage in activity indicated on the temporary permit to any legal or physical persons in any form is considered to be a violation of the conditions of the temporary permit.

6.9. The Russian Gosatomnadzor sends a notice of suspension or annulment of a temporary permit to the enterprise as well as to the body of executive government that registered the enterprise and the body of state public health surveillance that had issued the public health certificates to the enterprise for the right to work with ionizing radiation sources and for transportation resources.

6.10. Supervision over fulfillment of the conditions of the temporary permit is maintained by the Regional District Administration of the Russian Gosatomnadzor.

Registered by the Scientific-Technical Administration of the Russian Gosatomnadzor on 25 May 1993.

No 46-93

Order No 53, 25 May 1993, Moscow, "On Approval of the Statute on Procedure for Issuing Temporary Permits of the Russian Gosatomnadzor for Activities Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them"

BY MY ORDER:

The attached Statute on Procedure for Issuing Temporary Permits of the Russian Gosatomnadzor for Activities Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them shall be approved.

[signed] Chairman of the Russian Gosatomnadzor Yu. G. Vishnevskiy, Russian Federation Ministry of Justice
28 May 1993
Registration Number 263

List of Documents Required for Permit Application

93WN0457B Moscow ROSSIYSKIYE VESTI
in Russian 10 Jun 93 p 6

[Attachment 2 to the Statute on Procedure for Issuing Temporary Permits of the Russian Gosatomnadzor for Activities Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them: List of Documents Supporting an Application for Receipt of a Temporary Permit of the Russian Gosatomnadzor for Activity Associated With Producing, Handling and Using Radioactive Substances and Articles Made From Them]

[Text]

1. A report substantiating the safety of the activity applied for, containing:

- a list of types of radioactive substances, articles made from radioactive substances and/or radioactive wastes that are the object of the activity applied, with an indication of their quantity, isotope composition and radioactivity;
- a list and characteristics of facilities at the enterprise presenting a nuclear and radiation danger (production complexes, production sections, shops, storage facilities, installations etc.) at which the activity applied for is conducted;
- a description of the organization of the production process and its technological level (production and testing equipment, the technical and technological monitoring system, and the system for handling the radioactive wastes formed);
- a description of product quality and reliability control systems;
- a description of the basic technical concepts, systems and resources ensuring radiation safety of production and of products;
- a description of the structure and composition of the radiation safety service at the enterprise;
- a list of documents establishing general and special requirements on ensuring radiation safety of production operations (production procedures) and articles;
- a list of the composition, qualifications and certifications of personnel at facilities at which the activity applied for is conducted;
- an analysis of the correspondence of the work done to the requirements of technical standards on radiation safety currently in effect;
- a list of deviations from the requirements of standards on radiation safety, and of measures compensating for these deviations;
- the program of work to eliminate deviations from the requirements of technical standards on radiation safety.

2. Copies of the public health certificates granting the right to work with ionizing radiation sources, filled out in accordance with requirements of the "Basic Public Health Regulations of Work With Radioactive Substances and Other Sources of Ionizing Radiation OSP-72/87."

3. A copy of a permit (license) issued by nature protection organs for integrated nature use, for burial (storage) of

radioactive wastes, and/or for releasing and dumping radioactive substances into the environment (in accordance with the form of activity).

4. Enterprise instructions on ensuring radiation safety.
5. A list of possible radiation accidents.
6. Instructions on preventing accidents and fires and eliminating their consequences.
7. A plan of measures to protect personnel in the event of an accident.
8. Documents confirming presence and sufficiency of financial resources intended to compensate for damages that may be inflicted by the activity applied for upon the health and property of citizens and the surrounding natural environment.
9. Copies of the acts of acceptance of the facilities for operation (in the case of facilities already in operation).
10. Copies of public health certificates for specialized motor vehicles used to convey radioactive substances and materials, devices and units containing ionizing radiation sources, and radioactive wastes, filled out in accordance with the requirements of the "Basic Public Health Regulations of Work With Radioactive Substances and Other Sources of Ionizing Radiation OSP-72/87."
11. The routes of travel of special motor transportation, coordinated with the State Motor Vehicle Inspectorate which has the enterprise within its service area.
12. Instructions on procedures to be followed in the event of traffic accidents involving special motor transportation.
13. Copies of certificate-permits on transport packaging sets used by the enterprise.
14. A list of enterprises, organizations and other legal and physical persons doing jobs and rendering services associated with producing, handling and using radioactive substances and articles made from them in the course of the enterprise's conduct of applied-for activity, with an indication of the nature of the jobs and services.

Bryansk Hosts International Seminar on Chernobyl

93WN0450B Moscow PRAVDA in Russian 1 Jun 93 p 4

[Article by Anatoliy Grachev: "Once Again the People of Bryansk Are Left Out"]

[Text] An international seminar entitled "Problems of Mitigating the Consequences of the Chernobyl Catastrophe" completed its work in Bryansk. Our scientists exchanged research results with foreign scientists for 3 days. Some of the distinguished speakers laid their emphasis on the notion that there is no need to exaggerate the consequences of the tragedy to Russian soil.

Others on the other hand believe that the tragedy is great, and that dependable information is still being concealed from the public, so as not to mentally traumatize it. Still others, including V. Devyatov, chairman of the State Chernobyl Committee, emphasized that assets allocated to disaster recovery efforts are not being used at all for their

intended purpose. For example, why have more than 40 facilities that had been under construction with the support of the "Chernobyl" budget been excluded from the title lists, and why has their financing been dropped?

Many words were spoken, and many things were written as well. But when it comes to specifically how inhabitants of Bryansk Oblast residing in the contaminated zone are to be helped, it seems as if the participants of this seminar forgot to say anything or plan any kind of measures.

Work of Federation's Chernobyl Committee Examined

93WN0433B Moscow ROSSIYA in Russian
No 17, 21-27 Apr 93 p 5

[Interview with Andrey Kostryukov, head of the Information Department of the Russian Federation State Committee for the Protection of Citizens and Restoration of Areas Damaged by Chernobyl and Other Radiation Disasters, conducted by ROSSIYA correspondent Andrey Pavlov: "Strontium-90 Is No Sweeter Than Cesium-137"]

[Text] Kostryukov: Our committee was created in the fall of 1990 by a decision of the 1st Russian Congress of People's Deputies. It was originally called the "State Committee for the Elimination of the Effects of the Chernobyl Atomic Power Station Accident." But in 1991, as documents connected with accidents in the Ural region and the effects of the Semipalatinsk Testing Ground on areas within Russia began to be declassified, our agency was reorganized, and that is how we got our present unwieldy name. The committee's area of operations extends not only to the area of Russia that was negatively affected by Chernobyl, but also to three oblasts in the Urals—Chelyabinsk, Sverdlovsk and Kurgan—as well as areas affected by the Semipalatinsk Testing Ground in the Altay and Orenburg Oblast.

Pavlov: Much has already been written about the amount of damage done to Ukraine and Belarus by Chernobyl. But so far much less is known about the "Russian Chernobyl."

Kostryukov: According to figures published in February of this year, 16 oblasts in Russia and Mordovia were affected by the Chernobyl disaster. Their combined population is 2.7 million. Add to these the 400,000 Russian cleanup workers who worked at the Chernobyl Atomic Power Station site and also got their dose of radiation. The total size of areas contaminated by radiation from Chernobyl to a degree of more than one curie per square kilometer is 56,000 square kilometers.

Pavlov: Just what does that mean, "one curie per square kilometer"?

Kostryukov: According to the Russian law "On Social Protection for Citizens Affected by the Chernobyl Atomic Power Station Disaster," areas with radiation contamination in excess of that amount fall under the applicability of that law. The "dirtiest" area in the Russian Federation is the western part of Bryansk Oblast. There there are large areas

where the radiation level is 40 curies per square kilometer. And in population centers like Zaborye and Nikolayevka the contamination level reaches 100 curies.

The Chernobyl state committee, in conjunction with the appropriate ministries, agencies and public organizations, has developed several programs—for Chernobyl, the Urals, the Altay region—plus a special program called "Children of Chernobyl."

The Chernobyl program, which will cost a total of R75 billion [rubles] in 1991 prices, was approved by the government and the president last October and then went to the Supreme Soviet for approval. Unfortunately it is still there today. The Supreme Soviet is also currently considering the Urals program, which will cost more than R11 billion.

Pavlov: But does that mean that the work envisioned in those programs is not currently being done?

Kostryukov: Of course not. For example, this year a total of 22,800 samples will be taken in the forests of Bryansk Oblast in the course of radiation studies there, and decontamination efforts will continue. This type of decontamination differs radically from the simple burial of contaminated soil that was typical of the first years following the accident. Today our efforts include provision of gas service to affected areas so that residents will use less contaminated fuel and construction of water pipelines as an alternative to contaminated wells. We also build modern roads that will keep vehicles from raising clouds of radioactive dust.

Pavlov: How are you currently working together with Ukraine and Belarus on Chernobyl-related issues?

Kostryukov: We have minimal contacts with Kiev. But I want to be understood correctly: it is the Ukrainian Chernobyl ministry that does not want to have anything to do with us... This is obviously a reflection of Kravchuk's policy of dealing with all matters "independently," without Russia. But with Belarus we have signed a treaty on interaction to overcome the effects of the Chernobyl disaster, and a joint working group has been established.

Pavlov: Can you compare the danger for Russians living in areas contaminated by Chernobyl with that of living in "radioactive" areas of the Ural region?

Kostryukov: The situation in those two regions differs somewhat, because the primary component in the Chernobyl contamination is cesium-137, while the contaminants from the accident at the Mayak Association in the Urals, a nuclear weapons manufacturer, were strontium-90 and plutonium-241. These elements have different half-lives, but it would be incorrect to say that one of them is "better" than another or any less dangerous. Doctors say that the upsurge in oncological diseases in the contaminated regions will come in 10-15 years from the date of the disaster. In areas contaminated by Chernobyl that means that the worst period will begin sometime around 1996. So Chernobyl is going to be with us for a long time to come.

In Lieu of an Afterword

It will take Russia 10-15 years and \$60 million to bring all its nuclear power plants up to a safety level that meets Western

standards. This was reported by Aleksandr Yablokov, Russian Federation presidential advisor for environmental affairs. He believes that pollution is now the leading cause of death for people under the age of 70 in Russia. A. Yablokov also noted that 1 percent of our country's GNP is currently being spent on solving environmental problems. However, in order to achieve real improvement throughout the country, not just in environmental disaster areas, it will be necessary to spend a minimum of 5 percent of GNP on environmental protection measures. "Unfortunately," the presidential advisor added, "that is beyond our ability."

Zaporozhe AES Accident Due to Safety Violations *LD2805161393 Moscow ITAR-TASS World Service in Russian 1527 GMT 28 May 93*

[By UKRINFORM correspondent Vladimir Yeremenko—TASS]

[Text] Energodar/Zaporozhe Oblast/ 28 May—The state commission which completed its work here today and which has been studying the reasons for the accident which occurred at the Zaporozhe Nuclear Electric Power Station [AES], has come to the final conclusion that the accident, which resulted in the death of one person, happened because of an extremely flagrant violation of the safety regulations both on the part of those in charge of the work and on the part of the victims themselves.

An examination of the scene of the accident and questioning of the personnel, as well as of one of the victims, has made it possible to reconstruct the picture. Work was being conducted on equipment which did not have the necessary tolerance and, moreover, not in the sequence envisaged for the technology. Under a pressure of nine atmospheres, the hydrogen blew out and burst into flame and did a great deal of damage.

For the moment, only three power units are operating at the station.

Minatom Presents Proposal on Nuclear Waste *934D0073A Moscow MOSKOVSKIYE NOVOSTI in Russian No 20, 16 May 93 [Signed to press 11 May 93] p B12*

[Article by Leonid Veksler: "The 'Funeral' of Radioactive Waste Will Cost More Than 200 Billion Rubles: the Russian Federation Ministry of Nuclear Power Has Submitted to Parliament a State Program on the Handling of Radioactive Waste and Spent Nuclear Materials, Their Use and Their Burial"]

[Text] *This is by no means a one-department task—the program intended for up to the year 2005 has been coordinated with 13 departments. It has been proposed that it be financed (more than 203 billion rubles [R] in mid-1992 prices) through a special fund established by the Russian Federation [RF] Government. Funds from the budget are to be allocated only for defense purposes and for handling radioactive waste (RAO) accumulated prior to 1990. The remaining sections of the program should be financed by the enterprises which produce marketable output.*

The program deals with the handling of radioactive materials and waste from AESs [nuclear power plants], nuclear reactors of military and civilian ships, plants which manufacture and reprocess fuel, ore mining and smelting complexes, hydrometallurgical complexes, and military, medical and industrial enterprises. Incidentally, the waste accumulated during the production of nuclear weapons is larger by an order of magnitude than that produced in the peaceful nuclear industry and power engineering. Just as a result of the production of weapons-grade plutonium, the cumulative activity at the industrial site of PO Mayak [Mayak Production Association] (Chelyabinsk-65) exceeds 1 billion curies. Of these, 120 million curies are in holding ponds. This is why it has been proposed that the major portion of the allocations be directed toward the restoration of the lands and ponds contaminated during the carrying out of military activities.

In the year 2000, the treatment of ponds and basins with radioactive wastes is supposed to be completed and the protection of ground water systems and underground water tables from radionuclides ensured. In particular, it has been proposed that, at PO Mayak, the treatment of Lake Karachay, where the power of the radiation dosage amounts to 600 roentgens per hour, be completed in 1995 and, by 1998, the treatment of pond No 17 be completed and the discharging of liquid radioactive waste of low activity into bodies of water be stopped.

Since 1963, 79 underground nuclear explosions just for peaceful purposes took place on Russian territory, which led to the formation of radioactive vitreous masses at depths of 600-2,800 meters. The area of these regions needs a careful examination and, if need be, rehabilitation.

A special place is occupied by the operations on handling radioactive waste generated as a result of the cleanup of the consequences of the accident at the Chernobyl AES. They are being performed within the framework of the Unified State Program for Protecting the RF's Populace from the Effects of the Chernobyl Catastrophe for the Years 1992-1995 and the Period up to the Year 2005.

The bulk of the radioactive waste and spent nuclear fuel (OYAT) in world activities is associated with the nuclear fuel cycle which includes the operation of the AESs. The handling of spent nuclear fuel after its use in nuclear reactors, as adopted in the program, corresponds to the strategy adopted in Great Britain, France and Japan (the USA and Sweden are not reprocessing the spent nuclear fuel from their AESs and are storing it in special storage facilities, many of which are already overloaded). During the reprocessing of spent nuclear fuel (its overall amount in the RF is more than 15,000 tonnes), the residual U-235 extracted in the radiochemical production is targeted for the production of fuel, while the plutonium, of which more than 20 tonnes have been accumulated, is being stored. The reprocessing is making it possible to increase the efficiency of the fuel cycle and is ensuring the conversion of the radioactive waste into more stable solid forms prior to burial.

Since 1977, the only RT-1 [fuel-reprocessing] plant in the CIS for the reprocessing of spent nuclear fuel generated in

VVER-440 ship and research reactors has been operating in Chelyabinsk-65. Its annual productivity (400 tonnes) is supplying current needs completely.

The reprocessing of the fuel from VVER-1000 reactors is not planned until after 2005 in Krasnoyarsk-26 at the RT-2 plant. The temporary storage facility for spent nuclear fuel from the VVER-1000s as part of RT-2 has been designed for 2,000 tonnes (1,100 tonnes have already been received at the storage facility) and it will be filled no sooner than the year 2000. More than 1,000 tonnes of spent nuclear fuel are in storage at AESs.

The reprocessing of fuel used in RBMK reactors is considered to be economically inadvisable—plans have been made to bury it after appropriate cooling. Currently around 6,000 tonnes of spent nuclear fuel are being stored at AESs with RBMKs and problems are arising with its housing. However, the construction of a centralized storage facility is being delayed and this is why it is necessary to increase the capacities of the spent nuclear fuel storage facilities at the Leningrad and Kursk AESs. The storage facility at the Smolensk station is under construction.

At Mayak, the process for vitrification of liquid, highly active radioactive waste has already been mastered. As a result, 400 tonnes of waste with an activity of 70 million curies have been vitrified. In order to reduce sharply the liquid waste being stored in tanks, plans have been made to complete the establishment of an industrial complex for solidifying all highly active radioactive wastes and for extracting from the waste long-lived radionuclides by 1995. In addition, plans have been made to establish a modern complex for reprocessing solid radioactive wastes—it has been proposed that the first systems be introduced this very year. It has been proposed that, between now and the year 2000, the construction of a plant [tsekh] for the manufacture of a mixed uranium-plutonium fuel for BN-800 [fast neutron] and VVER-1000 reactors be completed and, by 2005, a pilot commercial system for the reprocessing of spent nuclear fuel from BN-800 reactors with a productivity of 85 tonnes per year be introduced.

At the present time more than 150,000 cubic meters of liquid waste, 12,000 cubic meters of solidified waste and 100,000 cubic meters of solid waste (equipment, protective clothing and the like) are to be stored at AESs. Plans have been made to reprocess the liquid waste, since its storage is more dangerous than that of solidified waste. The solidification systems have been included in the designs of all operating AESs and those taken out of operation. At the Leningrad and Kaliningrad AESs, radioactive waste solidification systems using the asphalt-encasement method are operating. Similar systems at the Balakovo and Novovoronezh AESs are also prepared and being introduced.

The wastes from the naval and civilian fleets are to be stored temporarily on special ships and at coastal sites. It has been proposed that, prior to the year 2000, structures be established in regions where the fleets are based, which would ensure the reprocessing and burial of compartments from ships with nuclear power plants, as well as the collection and storage of waste.

A special place in the program is occupied by the development of methods for the permanent burial in stable geological formations of spent nuclear waste not subject to reprocessing and vitrified highly active blocks. A number of countries are already carrying out the burial of low- and medium-activity wastes on a commercial scale. Attempts are being undertaken to begin also the burial of highly active wastes in deep formations. However, the program's authors have put off a final solution to the problem until the years 2000-2020. Provision is being made for the establishment by 1998 of a demonstration tomb at the Bilibino AES and the underground laboratory at PO Mayak. Plans have also been made for the construction by 2005 at Mayak of the first phase of an underground radioactive waste storage facility. Also being proposed for the years 2000 and 2005 respectively is the establishment of regional and local storage facilities and tombs for managing the wastes from transport reactors and AESs. Going on currently is an examination of the TEO [technical and economic feasibility] of a pilot commercial project at Novaya Zemlya for the underground isolation of low- and medium-activity solid radioactive waste and spent reactor fuel assemblies in the permafrost rocks.

Plans for Novaya Zemlya Nuclear Waste Dump Reported

*PM0706143093 Oslo AFTENPOSTEN in Norwegian
4 Jun 93 p 12*

[Halvor Tjonn report: "Russians To Build Nuclear Waste Dump"]

[Text] Moscow—"The construction this year of a storage facility for nuclear waste on Novaya Zemlya cannot be ruled out. Nevertheless, it will be a long time before all the nuclear waste on the Kola Peninsula is taken care of in a satisfactory manner," the deputy director of the Russian Environment Ministry's press department, Aleksandr Shuvalov, told AFTENPOSTEN in a conversation. Shuvalov said that the plans for a waste dump on Novaya Zemlya have been approved in principle. All that remains is to investigate their technical implementation.

"Under Russian law, the concrete technical plans must be assessed by us here at the Environment Ministry before they can be put into effect. I cannot give any firm indication of how far these plans have progressed at present. When we receive the technical plans we will need two months to go through them. If we find the plans satisfactory, construction could start immediately. I cannot rule out that this could happen before the new year," the spokesman said.

Shuvalov made no secret of the fact that this is a difficult and expensive project. As far as he knows it is not wholly clear today where the storage facility will be located. Initially a location close to the coast had been of interest, but there are now attempts to move the dump further into the interior of Novaya Zemlya. It seems likely that the dump will be located on the Bashmachnaya fjord on the more southerly of the two islands.

Despite that fact that these plans exist, Shuvalov is unable to promise that all the problems surrounding the storage of old

nuclear waste on the Kola Peninsula will be solved in the near future. "Removing the ships of nuclear waste which lie at anchor in the fjords of the Kola Peninsula is an exercise which will cost enormous sums. These ships are in such a state that they cannot be towed out onto the open seas. The only solution will be to seal the waste into secure containers before they are removed. I cannot say when we will be able to do this."

The spokesman for the Russian Environment Ministry revealed that the Russians are still making progress in discovering past sins in the northern regions. The joint Norwegian-Russian expedition which will investigate nuclear pollution in the Barents and Kara seas this summer has been given permission by the military authorities to visit a fjord on Novaya Zemlya where several nuclear reactors are supposed to have been dumped. The expedition is also waiting for permission from the military to investigate another two fjords.

Plans to make parts of Novaya Zemlya a national park are still current. The future fate of these plans depends on what happens with the nuclear testing on the island group. As soon as the testing area is closed, the Russian authorities will proceed to more concrete steps. In Shuvalov's view, if the nuclear testing area is closed, there is nothing to prevent tourists from coming to Novaya Zemlya. A total of 1.2 percent of Russian territory comprises nature reserves. President Boris Yeltsin has said that the aim is to reach 3 percent.

Sakhalin Energy Plan Said to Lack Environmental Safeguards

*934D0086A Moscow ROSSIYA in Russian
No 23, 2-8 Jun 93 p 6*

[Article by Valeriy Neverov, of the multi-activity concern "Hermes": "Planned Catastrophe: On the Plan for Mastering the Sakhalin Shelf"]

[Text] Our press usually represents as well conceived and mutually advantageous the plan for mastering the two largest oil-gas fields of the Sakhalin shelf (Lunskiy and Piltun-Astokhskiy) by an international consortium. We have some doubts about this, however. The technical and economic feasibility study [TEO] for the plan, presented to a commission of experts of the Russian government on the last day of 1992, was, in essence, not accepted. The experts, who were forced to examine the TEO—which contained 3,193 pages—in a total of 2 months, demanded fundamental revision of the plan. The public should monitor work on the plan, which is designed to export from the country an enormous quantity of gas and oil, and fulfillment of which can seriously worsen the ecological situation in the Sakhalin region and the entire Far East.

The TEO for the plan openly expresses the ecological ideology of those who prepared the plan. The following idea is directly stated in the TEO: Even an enormous oil spill in the ocean does not have a long-term impact on the environment. The spill of 40,000 tonnes of crude oil in the Alaska region from Exxon's tanker "Valdez" in March 1989, according to the authors of the plan, even caused an almost

twofold increase in the catch of hunchback salmon a year and a half after the spill. And altogether in the USA between 1970 and 1985, despite the extraction of oil on the outer shelf, the "total" amount spilled was 97,000 cubic meters of oil. They are saying, what is there to get upset about! But the region 13 to 17 kilometers from the coast of Sakhalin, where at a depth up to 50 meters the consortium intends to extract oil and gas from stationary ocean platforms, is distinguished by exceptionally complicated, uncommonly harsh natural-climatic conditions. The region is seismologically active; earthquakes up to 7 to 8 points, notoriously capable of destroying all oil and gas industry installations, are possible there. But despite this, the plan does not provide for anti-earthquake measures. The plan does not contain calculations of possible ecological damage; it lacks calculations not only of maximum damage, but of any damage whatsoever! Absent from the plan are forecasts of the ecological consequences of accidents in either ocean installations in the Sea of Okhotsk or in transporting oil, gas and condensate on dry land. And, you see, all the planned structures are located in an extreme climatic zone, where, besides earthquakes, tsunamis are possible, as is the powerful impact of ice on the platforms. The use of any anti-accident measures whatsoever can turn out to be impossible.

We must know precisely: What will happen in the event of maximum possible damage? It is evident that not only Russia but the entire planet will be adversely affected by it. What will the expenditures be to get rid of such damage? Will the consortium take these expenditures on itself?

These are general comments. There are also particular ones. The authors of the plan are proposing to build two pipelines to the coast from the Lunskiy field (the first one they intend to master). The possibility of an accident is not examined in the TEO, although, according to existing data, the probability of an accident involving such ocean pipelines, even under ordinary natural-climatic conditions, in 20 years is 6 percent, and significantly higher for Sakhalin. Accidents involving oil-product pipelines are always accompanied by the emission of a large quantity of oil, which in the cold temperatures of the water in the Sakhalin region makes it practically impossible to clean up the water in view of the slow biodegradation of oil hydrocarbons. The plan proposes construction of a pipeline to the south of Sakhalin, from where crude will be shipped abroad. Such construction will inevitably be the source of unfavorable effects on the environment. The plan contains neither an analysis of possible accidents, either on land or sea, nor precise methods for getting rid of the effects of accidents. Of course, acknowledgement by the consortium of insurance or compensation for damage in the event of accidents is absent.

The question of regulating the disposal of industrial and household waste waters in the ocean is not examined. All attention is allotted to argumentation in favor of the safety of draining untreated waste waters into the ocean. In our opinion, studying the plan for mastering the Sakhalin shelf should still lead to only one conclusion: that a legislative act is necessary to rigorously regulate the requirements for mastering the fields on the shelf.

Through the efforts of the commission of experts, success was achieved in sending the plan out for revision. But success was not achieved in providing a precise set of rules for this revision. And it is not known whether the plan, after revision, will be evaluated by the same commission of experts or will immediately be approved at the government level.

The public should be interested in the question: What about other plans for mastering our riches—are they better or worse?

Nizhniy Novgorod Hosts Environmental Safety Conference

*93WN0433C Moscow IZVESTIYA in Russian
20 May 93 p 8*

[ITAR-TASS report: "Conference Opens"]

[Text] The All-Russian Conference on the Environmental Safety of Cities During the Transition to a Market Economy has begun in Nizhniy Novgorod.

Attending are representatives of 40 industrial centers around the country.

The conference is working on common approaches to environmental certification and licensing of technologies, production facilities, equipment and instruments, as well as the production of absolutely pure products. In addition, a new aspect of environmental regulation of production will be presented: environmental insurance.

Radioactive Contamination Check for Nizhnevartovsk

*LD1306202093 Moscow Radio Rossii Network
in Russian 1900 GMT 13 Jun 93*

[Text] RIA reports that an inquiry into radioactive contamination is to be carried out in Nizhnevartovsk. The Nizhnevartovsk emergencies commission has decided on this because of the recent accident at neighboring Tomsk-7, and also because enterprises in Nizhnevartovsk utilize a large quantity of radioactive substances. Preliminary estimates put the cost of such an inquiry at over 6 million rubles.

Pyshma River Contains 'Significant' Quantity of Radionuclides

*93WN0427B Yekaterinburg URALSKIY RABOCHIY
in Russian 21 April 93 p 1*

[Article by Ye. Vladyskin: "Strontium on the River Bottom"]

[Text] A group of Ural scientists has completed the study of bottom deposits of the Pyshma River (from the Beloyarskiy Reservoir to Kamyshlov) for the content of heavy and radioactive metals. This work, carried out on a commission from the Ural Environmental Fund, has become the first experiment in the public expert study of the activities of the Beloyarskiy Nuclear Power Plant.

Ecologists started to talk about the need for such expert reviews back in 1990, when Ural "Greens" called for holding a "nuclear referendum" to find out inhabitants' attitude toward nuclear power engineering. Realizing that

one must not be guided by emotions alone in such a serious business, the defenders of the environment attempted to find money and enlist scientists in research. Alas, there was not enough money for a broad-scale program; therefore, they decided to limit themselves to the study of just one, fairly important problem. Thanks to the support of the oblast soviet, authorities in Beloyarskiy and Sukhologzhskiy rayons and the city of Asbest, and the Ural Environmental Fund, specialists from the Institute of Geology and Geochemistry of the Russian Academy of Sciences' Ural Division, have done such work.

According to one of the researchers, A. Zagoryuyev, candidate of geological and mineralogical sciences, the studies that have been conducted are of indisputable scientific value; after all, over the many years of operation of the Beloyarskiy Nuclear Power Plant, scientists and the representatives of monitoring organizations were limited solely to the study of the Beloyarskiy Reservoir and Olkhovka Swamp. It is known, for example, that radionuclides from the swamp, which has become a "natural accumulator" of them, are gradually carried out all the same, but what happens to them subsequently and how they interact with the geological environment is a question to which practically no one could give a convincing answer.

Now scientists can assert with substantiation that the Pyshma's bottom deposits contain a substantial quantity of radionuclides of technogenic origin that come from Olkhovka. The nuclear power engineers usually rely on the claim that the concentration of radioactive substances entering the environment from the Beloyarskiy Nuclear Power Plant is much lower than all existing normative rates. That is the case, but researchers believe that the presence of such isotopes as cesium-137 and strontium-90 is unnatural, in general, for the habitat of living creatures. Therefore, the normative rates, which were worked out by the nuclear power engineers themselves, may be disputed in the future. And if one considers that the consequences of the prolonged effect of radionuclides on the living organism have not yet been fully studied, it is all the more premature to speak of their complete safety.

In any event, the results of the research will not go for naught—interest in it has been shown by the Commission for Conducting Independent Expert Reviews of the Beloyarskiy Nuclear Power Plant and Facilities of the Sverdlovsk Branch of NIKIET [possibly the Scientific Research and Design Institute of Electrotechnology], a commission which was established, as URALSKIY RABOCHIY has already reported, on orders from the chairman of the Sverdlovsk Oblast Soviet and has begun operating.

Radiation Slows Development of Vasilyevskiy Island
93WN0441B Moscow IZVESTIYA in Russian
28 May 93 p 6

[Article by Yevgeniy Solomenko: "Blotches on Petersburg's Dress Uniform"]

[Text] St. Petersburg—Work with new types of operational radioactive material was performed in the 1940's-1950's on Vasilyevskiy Island, next to Shkiperskiy Channel, behind the

high fence of a top-secret naval research institute. Two special "hot boxes" were filled with cesium-137 and strontium-90. Radioactive waste accumulated here also, in a special repository—the so-called "Building 14."

Then this work was wound down, and the institute itself moved away somewhere. But the strong stain of radioactive contamination seeping into the local soils has remained. In experts' estimation, this is today the most complex radiation object in the whole of St. Petersburg. And it is located, what is more, between the major exhibition complex—the Ekspotsentr—and the Petersburg passenger seaport, the large Pribaltiyskaya Inturist hotel, and the Olimpiya floating hotel.

The first details concerning the large radioactive stain in Petersburg were leaked to the press only last year, causing disquiet among both our neighbors in Finland and the foreign guests accustomed to staying at the Pribaltiyskaya and Olimpiya. The North European district of the Committee for Supervision of Nuclear and Radiation Safety was inundated with international telephone calls: "Can we come to Petersburg and stay in the hotels of Vasilyevskiy Island without detriment to our health?"

Fortunately, nothing today threatens either the inhabitants of Vasilyevskiy Island or foreign visitors. In the summer of 1985 employees of the Lenspetskombinat, as commissioned by the Leningrad Naval Base, sawed down and removed "glowing" trees, cleared from the repository the remnants of the waste, and dismantled the "hot boxes." But underground, in the soil, everything remained as before. And what will happen tomorrow even specialists find it hard to predict. One thing is known: The radioactive impregnation reaches down six meters and there migrates together with the ground waters. So there is cause for alarm. And forces for which it is profitable to implant an atmosphere of fear around the Shkiperskiy Channel are availing themselves of this pretext.

The point being that the fifth block of Vasilyevskiy Island is the outlet to the Gulf of Finland. For this reason many Russian and overseas companies are endeavoring to acquire land for the construction of hotels, casinos, and tourist complexes. And are shunning nothing in kindling fears.

There are also those who are offering the city a kind of barter: We will clean up the area for you, you put this area at our disposal. This, for example, is a petition sent to the Russian government by the Maksat private agro-industrial firm from Naberezhnyye Chelny: "For a year there has been nothing but intensive correspondence between the Vasilyevskiy Ostrov stock company and the municipal and district authorities, and decontamination work has not started.... Approximately 150 hectares of land of the St. Petersburg sea front remain contaminated. Any initiative from the stock company geared to a solution of the question of removal of the earth and the start of practical operations encounters resistance from bureaucrats of various levels and is reduced to endless conferences and a continuation of the red tape."

Why is a firm from distant Naberezhnyye Chelny so disturbed about the fate of the Shkiperskiy Channel? And what

does concern for the Vasilyevskiy Ostrov stock company betoken? This stock company is a subsidiary enterprise of the Maksat firm. Both companies are headed by one and the same president—Z. Kharisov. The clue to his concern lies in that same letter: "For decontamination operations and preparation of the fifth block for development I request... that the Vasilyevskiy Ostrov stock company be rendered assistance in the solution of the question concerning removal of the earth of the contaminated territory...."

We note the scale of the contamination given: 150 hectares. In other letters the same Kharisov brandishes a less intimidating figure: 30 hectares. Inasmuch as he is now addressing the local authorities, which would hardly believe the mythical 150 contaminated hectares. In actual fact, according to information of the State Sanitary and Epidemiological Inspection, the total area of contamination today constitutes approximately two hectares.

Not only Maksat is hovering around the fifth block. There is a heap of proposed cleanup projects. But they are all evoking specialists' big misgivings: An incompetent approach could carry the radiation throughout the city.

So, the main question: To whom to entrust this work of higher-than-usual danger and how to prevent access to it of irresponsible amateurs and how to prevent those whose sole concern is future advantage from worming their way in by influence or a bribe.

The Engineering Center for Environmental Work, which has been opened under the auspices of the St. Petersburg City Hall, has been appointed general contractor. But its possibilities manifestly do not as yet correspond to the scale of the tasks it has been set. A working commission intended to resolve "the problem of the stain," was set up here, at city hall, in March. The stain, meanwhile, continues to grow, however.

According to specialists' calculations, the decontamination and recultivation of this land will cost at the very least half a billion rubles.

Time is passing, the contamination zone is growing. Where will it show itself tomorrow?

Chemical Weapons Stocks Will Not Be Destroyed Until 1997

MK2805112693 Moscow MOSKOVSKIY KOMSOMOLET in Russian May 93 p 2

[Dmitriy Kholodov report: "The Fruits of 'Chemicalization'"]

[Text] The fruits of our shock work in the "chemical" sphere—40,000 tonnes of chemical weapons—will remain intact in storage for at least another 4 years. According to Anatoliy Kuntsevich, chairman of the committee on chemical and biological weapons under the Russian Federation president, after the disintegration of the Union only seven storage facilities are left in Russia. We have no chemical weapons located abroad. Beginning in 1997, much work will be done to eliminate the stocks. The first to be destroyed will be the most "dirty" ones—7,700 tonnes of mustard gas and lewisite on the territory of Saratov Oblast and in

Udmurtia, and then 10,000 tonnes of organophosphorus poisonous substances. As they say, everything proceeds according to plan—first we produce and then start thinking whether what we have produced was necessary in the first place, and then wonder why there is no soap in the shops.

Pre-accident Warnings of Lax Tomsk-7 Safety Standards Surface

934F0670A Moscow ROSSIYSKAYA GAZETA in Russian 26 May 93 p 5

[Article by Tamara Karyakina, correspondent of ROSSIYSKAYA GAZETA, Tver: "There Is So Much Falsehood and Forgery There"]

[Text] A certain Gennadiy Petrovich Asinkritov, captain 2nd rank retired, veteran of the nuclear fleet, lives in Udomlya at the Kalinin Nuclear Station. Having finished his service on a nuclear submarine, he became an energetic antinuclear activist. This activity is manifested by him in a multifaceted manner: from work in various ecological commissions to numerous newspaper and journal publications and even picketing of facilities. He also tirelessly seeks persons holding similar views in the country and abroad. When he finds them, he enters into a long and serious correspondence: they coordinate activities, consult each other, and argue. After the recent accident in Tomsk-7, Gennadiy Petrovich brought a large gray folder with cloth strings to the press office of ROSSIYSKAYA GAZETA. He said gloomily: "The accident at the Siberian Chemical Combine has been inviting itself for many years. There is so much falsehood and open forgery there. Read the letters from there. Their authors are my friends, who have worked at the Siberian Chemical Combine for many years. You can publish the letters, only, please, change their family names."

Yes, another detail about Gennadiy Petrovich Asinkritov: he is a member of the presidium of the Russian Antinuclear Society.

First Letter

Can the Chernobyl tragedy repeat itself somewhere? I believe that in Tomsk-7 such a possibility is not ruled out. We could have already been blown up twice if not for the heroic acts of individual people. For example, once a critical situation was created at the AES [nuclear electric power station]. Chief of the shift G. rushed toward the articles and stamped them with his feet, but he seriously overirradiated himself. Later his legs were amputated. Another time foreman S. did the same with his hands and was left without them.

I worked at the Siberian Chemical Combine for more than 20 years. I was an operator, senior engineer, and chief of a chemical section.

I will tell an old story, which, in my opinion, is very significant, especially as its "main protagonists" have remained unpunished.

At that time I was senior engineer for control over the recording and storage of products. I discovered a forgery: a substantial quantity of a product was listed in inventory records, but, in fact, it did not exist. I wrote a detailed report

on this to S. I. Zaytsev, director of the combine. And what measures were taken? The following: for the missing quantity of the product a technical statement was prepared on the transfer of the product, which allegedly was not up to standards, from one plant to another for processing. Instead of the product other materials were loaded into containers and shipped. The chief engineer of the recipient plant himself delivered the samples taken from the real product (which had no relationship to the contents of the containers) to his own plant—there the process is long and it is impossible to find out everything immediately.

However, what happened with the lost product? Perhaps it was stolen? A search was organized. I, in particular, headed a group for liquid and solid waste. It turned out that more of this product than specified by normatives was disposed as waste. True, no one needed our conclusions: other data, but with reference to our commission, were sent to the ministry.

Then I personally organized research with the enlistment of specialists. We uncovered accurately: yes, the "lost" product is precisely there, in the waste. The quantity of the product disposed as waste is so large that a spontaneous nuclear explosion can occur at any time if only certain conditions are created. Incidentally, they are quite probable—this already happened in Chelyabinsk-40.

The longer we do not take steps, the greater the probability of creation of a critical situation. Nor can the probability that radioactive solutions will begin migration in ground waters be ruled out.

Perhaps it would not have been worth stirring up this old story if the danger had been eliminated. However, it exists. When can an emergency situation be created? Perhaps in 100 years, perhaps tomorrow, and perhaps never. But in such a terrible matter it is impossible to rely on "maybe nothing will happen."

[Signed] A. Ivanov, engineer
Tomsk-7, May 1989

Second Letter

Working people come to the Siberian Chemical Combine through three channels: compulsory (direction of higher educational institutions, *tekhnikums*, schools, and so forth), military (protection and construction battalions), and "voluntary" hiring. Everyone without exception who comes to work here does not know with what and under what conditions he will work. This "taboo" also exists now.

But at the Siberian Chemical Combine people work with a large spectrum of radioactive substances, although two types—we will call them "A" and "B"—are the main ones. Both of them are not "sugar" for man's health, but in radioactivity "A" is 3,000-fold worse than "B." Potassium cyanide, a terrible poison, is 30,000-fold less dangerous than product "A." With such "arithmetic" who would not think twice before coming to work "voluntarily"? Therefore, the secrets.

The flow lines of plants 1 and 10 were not designed for work with product "A," which requires biological protection eliminating contact between personnel and this product.

However, since the early 1960's it has become a permanent "side" genie "walking" all over the place. There are no quick air control instruments. One can find out how much "A" there is in the air of a given section only 2 or 3 days after a sample is taken. Besides, it is not taken daily. Product "A" has the property of accumulating in the most unexpected equipment places under the effect of gamma-fields. During equipment repairs it passes into the air and into solutions. These are the main ways of contaminating working people with the poison.

Product "A" destroys not only people's health, but also their heredity. The detected foci of "contamination" with products "A" and "B" are cleaned and covered with paint. However, there are no amounts of the "dirt" in reports "to the top."

And so, a favorable "picture" for the management is painted at the expense of people's health.

In 1986 I sent a letter to the All-Union Central Trade-Union Council. The letter did not reach the addressee—the answer came from the main administration. Local managers altogether spit upon my warning and one and a half months later the scattering of products "A" and "B" occurred. One can judge the magnitude of the accident from the recorded contamination area: a 500 x 6-meter transport corridor. The scattering was "detected" on the third day after the extraordinary event! Only God knows how much of this product was taken out on footwear, on clothing, and in the personnel's lungs during that time and how much was delivered to city streets, transport facilities, and apartments. After all, people walked through the corridor in their own, not special, clothing.

The lack of quick and reliable instruments for controlling the accumulation of radioactive substances in people's bodies (the installations existing for this date from the beginning of nuclear power engineering) enables the administration to deny the existence of occupational diseases among a vast number of people working on facilities and this makes it possible to write reports about well-being. This is the second "secret" of good statistics. The first is to wash off and paint over the "dirt" and not to show it in the report. How many people suffering from occupational diseases do we have? This is a secret.

At the Siberian Chemical Combine a great deal was done to reduce the discharge of harmful and radioactive substances into the air medium. The "fox brush" over one of the pipes almost disappeared. The dynamics of the discharge of radioactive substances from another pipe is satisfactory: the 1950's—1,500 kg of product "B" annually; the 1970's—150 kg of the same product with an addition of "A"; the 1980's—15 kg annually.

For the dilettante it has become 100-fold better; for the professional, no: There is an overall accumulation of radioactive substances in the soil and in the water of lakes and rivers. The "volley" disposals of products "A" and "B" in solutions dumped during the 1960's, in general, have created an emergency situation in the region. In 1967 Candidate of Technical Sciences Ye. M. Vetrov notified the administration of this trouble in writing, but in 1968 he was

"sent away" to the city of Obninsk. Even now the disposal of water solutions of product "A" is permitted—3,000 maximum permissible concentrations. This is for the Tom [River]? Is this not a bit too much?

Several thousands of hectares of land (and reservoirs) are covered with disposed solutions of radioactive waste. This land area will be unsuitable for human activity for more than one-quarter of a million years. And the most terrible thing: The penetration of radioactive solutions into the upper layer of underground water is not ruled out. The disposal from settling tanks goes through Tom and Ob rivers to the Arctic.

No matter who governs Russia, a president or a monarch, the "reds" or the "greens," the problem of a partial cleaning of the Tomsk-Obsk Basin and of the territory of Tomskiy, Asinovskiy, and the oblast's other rayons from contamination with radioactive substances must be solved urgently.

[Signed] N. Pyryev, engineer
Tomsk-7, January 1990

Third Letter

Tomsk-7 scientists are guarding the secrets of their nuclear production with amazing constancy and even desperately.

A radioactive solution enters the low horizons of the earth through pipes. After a certain area is pumped to the limit, pipes are plugged at the top, the pressure remains, and the next wells are drilled for injection. There is a great number of such pipes with solutions on the site under pressure.

Now imagine that a pipe is unsealed and a radioactive solution enters the water-bearing horizon. This is not ruled out, because pipe joints are very weak spots. In these cases, for insurance, there are control wells along the perimeter of the burial site and a leak will be detected. Let us assume that a leak is detected. So what? After all, radioactive solutions will already begin to "walk" along the horizons, where artesian wells are located. It will no longer be possible to stop them. Worse than that (as people say, God forbid), a small earthquake, a movement of the earth layer: pipes break and the solution will flow. This will be the most colossal disaster throughout West Siberia.

[Signed] A. Grigoryev, engineer at the Siberian Chemical Combine
Tomsk-7, October 1990

Fourth Letter

The nuclear materials of the Siberian Chemical Combine dumped into the reservoir and burial grounds were deliberately underestimated and concealed by the combine's management with the knowledge of the ministry and of KGB and CPSU bodies. Attempts to urge prudence were unsuccessful and the persons who rose in defense of state interests were suppressed ruthlessly.

The operation under the name "Y 1" was based on a forgery in report documents of the coefficient of dioxide undercalcination from 0.46 to 1.8 percent, which made it possible to redeliver 1.35 percent more plutonium dioxide than required according to specifications from plant 15 to plant 25 and to partially cover the losses at plant 25. The management of the Siberian Chemical Combine legalized the forgery, approved it by a technical statement (MB-10/1159s dated 11 August 1966), and realized it at plant 25.

However, the operation under the name "Y 1" began in the reactors of plant 5, where a greater ballast accumulation of plutonium-240 than required according to specifications took place for the purpose of compensation for the losses at plants 15 and 25. The combine's present deputy chief engineer directed this action at plant 5. The redeliveries of plutonium according to the 1.8-percent coefficient to the plant did not create the prerequisites for a reduction of losses and corrupted the personnel. The management had to invent new methods of fraud. For this (in 1967) they invented (at plant 25) a fictitious recording of plutonium. In 10 months approximately 90 kg of fictitious plutonium oxalate (named "Pomorov's oxalate" after its "inventor"—former chief of shop 1 and later secretary of the oblast party committee) "accumulated" at the warehouses of shop 1. In order to conceal the traces of the fictitious recording of plutonium, the management of the Siberian Chemical Combine decided to "turn over" the fictitious plutonium oxalate to plant 15 for "purification" and instead to receive pure and not fictitious plutonium oxalate. This adventure, which I named operation "Y 2," was also legalized by a technical statement. How many adventures similar to "Y 1" and "Y 2" were there if no less than 850 kg of plutonium were dumped into the reservoir?

Operation "Y 2" was conducted in the middle of November 1967. At the end of November an order was issued on the establishment of a balance commission consisting of approximately 130 people under the chairmanship of Doctor of Technical Sciences A. I. Karelin, deputy chief engineer of the Siberian Chemical Combine. I was the leader of one of the balance commission's brigades of foundry and lathe sections. I had to prepare a comprehensive balance report on two shops: chemical-metallurgical and foundry-machine shops. The balance showed that plutonium losses occurred owing to irresponsibility and connivance. A total of 1.5 to 3.0 kg of the product per month were lost through a special sewer system with sump (waste) water. It was lost continuously!

[Signed] N. Pryakhin
Tomsk-7, 1988

Such warning letters accumulated in the gray folder with cloth strings. The authors sent copies of them to the Central Committee, the KGB, and so forth. The department offered every possible resistance until the explosion. Do we really know the whole truth about this today?

Siberian Paper Cited on Continuing Tomsk Contamination

PM1406122993 Moscow IZVESTIYA in Russian
9 Jun 93 First Edition p 5

[Aleksey Tarasov report: "Big Lie After Tomsk Accident Too"]

[Text] "Whereas it took several years to learn the truth about Chernobyl, it took only a few days to expose the lie about the explosion at Tomsk-7. That's progress!"

Aleksandr Boltachev, deputy editor of the newspaper DIALOG and a resident of the closed, numbered Tomsk, raises this issue in SIBIRSKAYA GAZETA [Siberia Gazette] with a fair amount of skepticism. Right after the accident at the Siberian Chemical Combine his suspicions were aroused that the information conveyed by official organs did not tally with the truth.

Together with Anatoliy Merzlyakov, chairman of the Tomsk-7 Ecology Committee, he drove to the village of Georgiyevka—the most distant point, if the radioactive pollution chart is to be believed, where according to official figures the background was 35 microroentgens per hour. Getting out of their car where "Installation Five" (the Siberian Chemical Combine's No. 5 Plant) workers meet for lunch, Boltachev and Merzlyakov switched on their dosimeters and discovered that the gamma background was 102 microroentgens per hour. They measured a house wall and a bird cherry branch: The reading was 70 microroentgens per hour. They went into a truck garden and found 2,000 microroentgens per hour.

Boltachev writes that, when they shared their impressions with "Installation Five" radiation supervisors, one of them replied: "Go on: You will find still more...." Assuming that Georgiyevka was not the most distant point of pollution, the journalist opened up maps of Tomsk Oblast, marked the location of the explosion's epicenter (the chemical combine's No. 15 Plant), drew a line from it to Georgiyevka, continued that line, and came to the large taiga village of Chernaya Rechka. Leonid Rikhvanov, a scientist at Tomsk Polytechnical University and an independent expert, confirmed Boltachev's conjecture. The scientist had drawn up his own chart of radioactive pollution based on an aerial survey, and it extends beyond Chernaya Rechka.

"But the lies did not end there," Boltachev says. Indeed, it was stated perfectly officially that the most dangerous place for people's health was the Tomsk-Samus section of road. Radiation monitoring posts were set up there, with the wheels of vehicles being washed. All the commissions and delegations were taken there to be shown: We have taken measures, we are working.

But meanwhile, as the Tomsk journalist testifies, the city ecology committee had noted the migration of radionuclides toward Tomsk-7. Together with committee worker S. Donnikov and engineer-radiophysicist S. Pozhidayev, Boltachev headed for "Installation Fifteen." Some 3 km from their goal they detected "patchy" radiation: The instrument readings—from 25 to 100 microroentgens per hour—differed greatly literally just a few centimeters apart.

"Totally unsuspecting people," Boltachev writes, "were going about in everyday clothes and driving private cars." At a bus stop instruments showed from 50 to 90 microroentgens per hour. A patch of 1,100 microroentgens per hour was found in the militia precinct yard. Inspector V. Balabanenko privately owned minibus stood there, and its trace showed 500 microroentgens per hour. Thus, the group was convinced: "Against a background of constant assurances that the city is out of danger, radionuclides are migrating toward it, and nobody is attempting to prevent this.... So far only radioactive 'blooms' have appeared. The 'fruits' will come later, when the land has dried out, dust has appeared, and the winds have started blowing. God only knows where they will take the radioactive infection."

The data published by SIBIRSKAYA GAZETA are confirmed by information from some other trustworthy sources. IZVESTIYA, for example, has already reported a discrepancy between official data and the information given by A. Yablokov, the Russian president's ecology adviser.

'Openness' of Tomsk-7 Officials Noted

93WN0422A Moscow IZVESTIYA in Russian
12 May 93 p 7

[Article by Viktor Kostyukovskiy, IZVESTIYA: "Tomsk-7: Nuclear Ordinairiness After the Explosion"]

[Text]

A Persistent Reporter Wins

The last time I visited Tomsk-7 was almost 2 years ago. The management of the Siberian Chemical Combine arranged for a press conference for us, participants in the IZVESTIYA international ecological expedition, Greenpeace specialists from the Netherlands and Germany, and journalists from the United States, the Netherlands, and Russia. It took place in the city executive committee building, though—we were not permitted access to the combine itself. The guests irritated the hosts. They were especially irked by the manner of Frederick Kempe from THE WALL STREET JOURNAL.

"Do you enrich uranium to the extent that it could be used in weapons?" asked Fred.

"No," he was told, "we do not enrich uranium to such a degree."

The "tactless" journalist would not desist, however, and kept asking this question. The hosts could barely contain themselves. And suddenly—it worked!

"Does that mean," Fred continued, unperturbed, "that you do not fulfill Ministry of Defense orders?"

It was at this point that one of the hosts blew up:

"What do you mean—not fulfill? The Ministry of Defense is our main customer!"

On this visit I told the combine director, Gennadiy Khondorin, of this press conference (he had been out of town at the time). Gennadiy Petrovich laughed:

"Actually, what they said was absolutely true—we do not indeed enrich uranium to such a degree. We get it already enriched... Of course, it was stupid to hide what already was known at the time, including in the West. We are not the ones who establish the level of secrecy, however. If any of our employees said at the time that we were producing nuclear weapons components, that person would be seriously punished. Today we speak of it openly..."

This time I came to Tomsk-7 to see with my own eyes the consequences of the recent accident that had resulted in a discharge of radioactive substances over the territory of the combine. Two circumstances were a surprise.

First: When the director of the radiochemical plant, V. Korotkevich, and a dosimetrist led me to the building affected by the accident, I realized that I had had no notion of the power of the "puff." As the same G. Khandorin told me over the telephone, pressure had risen in a uranium solution container, the container blew up, and some of the solution was discharged. What I saw were broken ceiling panels, twisted columns and crossbeams, and an almost entirely "blown-out" glass-panel wall of the building next door, which the shock wave reached through a corridor...

"Quite a blast," I could not help but comment.

"Yes," replied V. Korotkevich calmly, "it was indeed quite a bang. Although I must tell you that the excess pressure was not all that great; still, it was enough to do all this damage."

It has been established by now why this excess pressure had formed. I do not want to name the operator who committed two errors in the process, two gross violations of technological discipline. Naturally he is guilty and has been punished, although clearly incommensurately with the consequences. There are even no grounds to fire him from the combine—the "history of violations" needed for that is not extensive enough. But this lesson is not really a lesson, because no process that depends completely on a human being can be insured against error. And therefore against various consequences. The real lesson is different—this kind of production has to be what is called "fool-proof." This is a completely official term which is not meant to insult anyone. It is just that things have to be set up in such a way that even if the operator wanted to, he could not violate even a letter of the regulations. This kind of protection was not there.

Two Paces From the Explosion

The background gamma radiation at the spot where we stood amounted to 100-200 microroentgen per hour. Is that a lot or a little? If I stood in this spot for approximately 20-22 hours I could absorb the annual allowable dosage for combine employees. We were dressed in the "light" version of protective clothing—lavan robes and caps, respirators, and plastic booties. At the actual site of the explosion, however, it "shined" considerably more: 10-15 roentgen an hour! And this is after 20 days of washing, after almost nonstop treatment with acid and alkaline solutions. At this point no one can work there yet; dosimetrists run up to the explosion site for a few seconds; "deactivation" is conducted by "remote means"—a powerful jet stream from a distance. When it is ascertained that further washing does

not produce any results, concrete will be poured into the ferroconcrete canyon with whatever is left of the apparatus. Some already call the future structure a "sarcophagus," comparing it with the one at Chernobyl. To me personally it seems more apt to compare it with the well-known methods of covering up crimes used by the mafia: pour concrete over a body and no one will ever find out...

In Tomsk-7 itself, as well as in the oblast center, the radiation level during these days did not exceed that of the background space-emitted radiation. As already reported, the discharge moved strictly in a northeasterly direction, since the wind was from the southwest, which is typical of these parts. In addition, it was snowing that day, which helped bring the aerosol down. Finally, one more circumstance that made it possible for the GKChS [State Commission for Emergencies] and IAEA [International Atomic Energy Agency] to classify the radiation situation in the area of the accident as not dangerous for the population: Analysis of the radionuclide composition of contamination along the path revealed mainly elements with a relatively short lifespan—ruthenium-103 and 106, zirconium-95, and niobium-94 and 95. Plutonium is a special topic. Yes, it was detected, too, albeit in microscopic quantities. Plutonium contamination along the path is estimated at 0.008 curies per square kilometer. The following calculation is currently quoted frequently: Over 50 years of living on the territory of the path, a person's plutonium radiation dose may amount to 10 millibars. The annual permissible dose for the combine's employees is 50 times that much. So it would not be too bad, if only... If only we could firmly count on nothing like this even happening again. Because plutonium is one of the most stable elements.

Nuclear Professionals Want To Speak Out

The second circumstance that surprised me was the degree of openness—both at the combine and in the city. I was shown, told, and permitted to photograph practically everything I wanted to. I even visited the separation plant equipped with unique and apparently the world's most effective centrifugal technology for uranium separation. This would merit a separate story. Perhaps IZVESTIYA was getting special privileges? No, a score of journalists, including foreign ones, have already visited both the city and the combine. And for their "own" local journalists they hold monthly briefings in Tomsk-7. This openness, however, still has not translated into more trust in nuclear professionals on the part of the population.

Numerous rumors develop. The recent accident, too, was accompanied by rumors of a radioactive cloud, which IZVESTIYA has already reported on. Even after the results of the probe, which did not detect any radioactivity in it, newspapers continue to publish these tales. Another example is worse. Television shows children with severe birth defects; the text says that the arrival of such children from Tomsk-7 into a specialized children's home has increased lately. And that all of this is the result of radiation. But, first, none of the parents of these babies—except, I think, one—had ever worked at the combine; second, in the

past such babies (which, as in any city, have always existed) simply were not sent from Tomsk-7 to this particular institution.

Who Dies From What in a Closed City?

A. Maslyuk, chief physician at the Tomsk-7 disease control service, had exhaustive information on the state of health and the results of a careful analysis of city residents' mortality and sicknesses. When one gets the advice to visit the city cemetery and see with one's own eyes that there are mainly young people buried there, Aleksandr Ivanovich clarifies: Yes, there are great many young people buried at the old cemetery. The point is, however, that at the time burials were performed there, the average age of city residents was 28-30 years. On the other hand, the new territory shows the same picture as other cities: the incidence of blood and oncological ailments is lower than in other Siberian cities, due to better medical services here. That is, there is practically no link between the nature of production and city residents' health. Maslyuk does emphasize: so far. It may, however, manifest itself in grandchildren, and health-care professionals are keeping watch.

It is another matter that this link undoubtedly does exist and affects the health of combine employees who have been exposed to radioactive substances for many years. There are several tens people suffering from chronic professional diseases. There have been instances of radiation exposure during previous accidents (by the way, there were 23 accidents before this one, but nobody knew about them because of the secrecy and because they did not produce an external discharge). There are two disabled persons living in the city—one without arms, the other without legs—this is the result of radiation exposure...

Maslyuk is not believed, either, although he does not hide "negative" information. Oblast center residents are especially distrustful. One does not have to go far: Khandorin and I got convincing proof of this literally in passing when we left the combine's office and glanced at the dosimeter reading showing 7 milliroentgen an hour. Two kids were standing next to it, about 10 or 12 years old, and one was telling the other authoritatively: "This is all lies." There is no one to blame for this. The years of closeness and secrecy did the job.

Tomsk nuclear professionals greatly dislike the press buzzword "nuclear monster." What can one do, however—we have to use this kind of description as long as there is danger. And it does exist. There may be consequences that are not dangerous for the population, but there is no safe nuclear industry. This does not mean that it needs to be immediately disposed of. On the contrary, it can only become safe as we develop this area of human knowledge and technology. Nobody will have the power to exterminate all this from our life, just like the omnipotent dictators could not extinguish genetics and cybernetics. But there should be a corresponding attitude that is constantly aware of the tremendous potential danger.

CW Ecological Threat in Volga-Urals Zone

93WC0073A Moscow YEZHEDNEVNAYA GAZETA
in Russian No 6, 20 May 93 [Signed to press 13 May 93] p 2

[Personal notes by Vladimir Strezhnev to Boris Vishnevskiy: "Threat from the Military-Chemical Complex More Frightening Than Chernobyl; Undeclared Chemical War Continues in Russia"]

[Text] On the special maps for the deployment of chemical weapons, the triangle "Kazan-Kirov-Izhevsk" is encoded as "Region N13." There is sad symbolism there! The heart of Europe's largest water basin (Volga, Kama, Vyatka), one of the most industrial and most densely populated regions of Russia (the record density of neighboring Chuvashiya is 34 people per square kilometer), has been transformed by the VKhK [military-chemical complex] into the most concentrated depository of toxic substances or, more accurately, military toxic chemical agents.

The inconspicuous Udmurt town of Kambarka is a 5-hour drive to the east of Kazan. Practically the entire world's reserve of Lewisite is concentrated at the local military base (the enterprise "Les"). The 6,400 [sic] of rapid-acting poison is enough to kill every citizen of Udmurtiya exactly 175 million times over. The town of Novocheboksarsk is located 100 km to the west of Kazan. Here, at the "Khimprom" Production Association, they produced the lethal V-gas from 1972 through 1987. Highly toxic phosphoric toxic agents from all Russian storage bases were supposed to be returned here for disposal.

In Kazan itself, according to Doctor of Chemical Sciences V. Mirzayanov, they produced yperite [mustard gas] at two production sites plus the chemical plant in Bondyug (now the town of Mendeleyevsk in Tatarstan). They disposed of substandard material here. The burial sites are unknown. Downstream on the Volga is the city of Chapayevsk next to Samara Oblast. There they once produced yperite. Even further down the "main water artery" is the Volgograd production association "Khimprom." Shop No 34 produced the toxic agent soman. Below that is the Saratov test range "Shikhany," where they burned toxic agents mixed with diesel fuel and sometimes simply poured them into trenches. And farther to the east, there are chemical plants in Asha and Karabash in Chelyabinsk Oblast and Irbit and Nizhniy Tagil in Yekaterinburg Oblast.... Until recently a general of the military-chemical complex along with the local party-Soviet leadership were successful for many years in keeping people in the dark. Were there realistic statistics on the ominous interaction between people and toxic substances? Two and a half years ago at a ceremonial briefing in Kambarka (on the occasion of the arrival of American inspectors), journalists were served neatly cleaned-up figures. Officially medicine and ecology were models of health and only personal surveys and observation outside of involved specialists showed the true increase in oncological illnesses, congenital anomalies, premature births....

What changed? It became known that in the 1960's military people burned yperite at a base located on the edge of the city and in the 1980's they burned Lewisite. And they did it

in the most primitive open way. But until now statistics on illnesses have been unavailable—even to deputies of the rayon soviet.

Nor has there been an investigation of the reasons for the fire in 1974 at the "Khimprom" Production Association in Novocheboksarsk and its consequences have not been eliminated. Despite the direct instructions of the Yeltsin administration, the commission to investigate the accident has not begun its work.

The picture is not much different at other sites for the production and disposal of toxic substances. There is the same lulling semiofficial propaganda, lack of realistic statistics, and tragic fate of people. In that same Chapayevsk, the relatives and friends of those who perished opposed the construction of a disposal plant that was widely proclaimed as the "most dependable in the system of the military-chemical complex." The well-known American specialist D. Kvarck characterized the disposal method applied here as a backward technology at the level of the 1950's. The tireless Doctor Mirzayanov detected a concentration of soman around the smokestack of shop No 34 of the Volgograd "Khimprom" Production Association that exceeded the maximum permissible concentration by a factor of 100. It was a thousand times the allowed level in the shop sewage tank. And the examples are endless. Meanwhile, a convention was signed three months ago in Paris on the prohibition of the development, testing, placement, and sale of military toxic chemical agents. Russia and the United States obligated themselves to destroy all of their stocks by 2002 under a strict schedule and international monitoring.

How will they be destroyed and with what guarantees of safety? There are 40,000 tonnes of toxic agents at seven storage sites (official version). Or, in the unofficial version, there are 70,000 tonnes at 60 sites including sea dumps.

At the meeting in Kambarka, Gen. I. Yevstafyev, directly responsible in the Defense Ministry of the Union for the elimination of stocks of chemical weapons, refused to comment. He let it be known that several means of disposing of toxic agents have been developed. And the final decision belonged to the Supreme Soviet of the USSR, which perished soon after that meeting.

On 19 January of this year, there was a joint meeting of the committees for industry, energy, and ecology of the Supreme Soviet of the Russian Federation. They listened to a report from Gen. A. Kuntsevich, chairman of the Committee on Conventional Problems of Chemical and Biological Weapons under the president of Russia. The report was so vulnerable that the legislators did not even accept as a basis the program set forth in it. Besides its technical unsoundness, the excessive commercialization of the project was apparent to the representatives of the Volga and Cis-Ural regions. Defining, for example, the problem of Lewisite as "exclusively one of resources," the general called on them (I quote from the text of his speech) "not to bow down to anyone and to orient it quite distinctly toward the obtaining of the maximum economic effect.... As for the problem of

the salvaging of chemical weapons...it is necessary to allow new economic structures in the form of joint-stock companies and associations...."

But is it not shameful to lure parliamentarians with superprofits, not having established the elementary conditions for the safety of millions of people at the sites?

Dr. V. Mirzayanov has his own key to the understanding of such a move. He thinks that in signing the Paris convention the Russian military-chemical complex concealed a whole series of extremely important circumstances from world public, including the existence of new kinds of chemical weapons, technical documentation, and so on.

Accordingly, the list of chemical materials subject to a prohibition against their export from Russia (see the directive of President B. Yeltsin from 16 September 1992) did not include either "intermediate products for the synthesis of our new toxic agent or the Novocheboksarsk substance or their binary variants. This unties the hands of the new businessmen from the military-chemical complex for the business of exporting the semifinished products concealed from the public." The big game with deadly stocks elicits the most serious fears. Take the town of Kambarka that has suffered so much. Its inhabitants were promised so many times: all decisions on toxic agents will be made amicably. First the generals of the chemical forces S. Petrov and I. Yevstafyev deceived them and now the conventional Gen. A. Kunzevich is doing the same thing. That is the ultimate result. The local authorities are going around the people and giving their approval to Kuntsevich: they are establishing a joint-stock company in which the generals have full authority to distribute the resources of taxpayers amounting to \$495 million to the inspection service. They are spending \$10 million just for the purchase of equipment for the national center. Where? In Moscow, of course. As for those who suffered from the toxic agents, Udmurtiya, for example, has been promised a ludicrous compensation—all of 150 million rubles [R] in last year's prices. Even if this sum is divided just among the inhabitants of Kambarka, each will get only R7,500 for the deadly risk.

To curb the latest public trough at the expense of the suffering people, it is necessary to finance the program for the disposal of toxic agents exclusively through the regions. Today's sovereign republics are quite able to order subcontractors an optimum work routine with respect to both safety and efficiency—and profitably, as it turns out.

The fateful departure of the generals of the military-chemical complex from the regional interests of Russia presaged the impracticability of the schedule of the Geneva Convention. There has still not been a thorough inventory of the arsenals of toxic agents, including those buried and sunk at sea. What is involved here? There has not yet been an independent ecological appraisal of the depositories and former production sites of toxic agents. Despite ratification of the agreement, adjustments have not yet been made taking into account real expenditures....

In Moscow in May of this year, General Kuntsevich is convening an international conference on chemical disarmament. But is it possible and is it moral for Russian

scientists and representatives of the regions and public to take part in it? If, in the words of Dr. of Chemical Sciences L. Fedorov, "without getting involved in battles on foreign territory, the military-chemical complex gave us a full-scale war in our own territory...." Its victims include not only millions of people in the risk zones but also fearless professionals who rose up against a poisoned policy. We are talking about the persecution of specialists, who know their business and are warning the public of an impending calamity. In October of last year, the Ministry of Security of Russia arrested Dr. of Chemical Sciences V. Mirzayanov. He is being investigated for supposedly divulging state secrets. At the end of February of this year, the prosecution of V. Uglev, one of the creators of new forms of chemical weapons, began. At the end of March, they applied the procedure of recall to V. Petrenko, a former worker of the military-chemical test range at Shikhany....

Who is next? The chemical war is continuing.

Vladimir Strezhnev 18 May 1993, 1821 Moscow time

South Urals Region Suffers Effects of Plutonium Production

93WN0450C Moscow *FEDERATSIYA* in Russian
No 58, 27 May 93 pp 3-4

[Article by Aleksandr Tropkin: "The Price of the 'Atomic Shield'"]

[Text] An official admission of one of the country's and world's greatest ecological catastrophes, which occurred in the Southern Urals, was made 2 years ago in an edict of the Russian President. More than 40 years after the tragedy, the presidential edict guaranteed comprehensive assistance to affected inhabitants of Chelyabinsk, Sverdlovsk and Kurgan oblasts. Unfortunately this assistance is a little too late for many of its victims.

Mankind is now more than adequately informed regarding the radioactive nightmare of the Chernobyl accident and its consequences. Specialists assert however that the tragedy that occurred in the late 1940s in the Southern Urals is equal in its scale to at least three Chernobyls put together. But it is difficult to believe this, at least because far from all the details of the events that occurred half a century ago are known. Still, what has been made public rocks the imagination.

The City Where They Made the Atomic Bomb

The local press of industrial Chelyabinsk has already made several references to the precise address of this industrial facility and city of many thousands, which had been top secret just recently and which bears a somewhat strange name—"Mayak" ["Beacon"]. The city is still alive and well, astounding rare visitors by the substantial look of its pseudoclassical architecture, its well-tuned system of trade and personal services, and the conviction people living here express in their special terrestrial purpose. Of course, this invisible city, founded half a century ago, is only an appendage to the principal supersecret facility, about which we can speak only in whispers even today. In recently published documents the industrial facility is referred to as

"an enterprise producing plutonium necessary for atomic weapons." But here is a more accurate description of it: "a uranium graphite-moderated thermal reactor with flow-through water cooling." Add to this the extremely large radiochemical plant that isolates plutonium and uranium from fuel irradiated in the reactor.

It has also become known that the scientific part of the project was under the leadership of Igor Kurchatov, Russia's Oppenheimer. Physicists such as Anatoliy Aleksandrov, Yefim Slavskiy and other known and still unknown atomic scientists worked closely with him. But the main inspiration and bosses of the global "Uranium Project" were Lavrentiy Beriia and Joseph Stalin, who dreamed of Soviet arsenals brim-full with atomic bombs. We are of course speaking about more than just the scientific and industrial complex in the Southern Urals. Several such nuclear centers were established in the country immediately after the war.

The legend exists that a paradise was created for atomic scientists by KGB hosts behind the barbed wire of numbered plants and secret cities: They received enormous amounts of money, they ate like kings, and they vacationed by the Black Sea. Still, fear was the principal stimulus behind the exhausting research of the scientists.

The great goal justified all means, and Igor Kurchatov assimilated this postulate of the Stalin era extremely well. He and all of his co-workers on the bomb could of course calculate the dangerous consequences of nuclear testing upon the life and health of people down to the curie. However, Lavrentiy Beriia's threatening whip and certainty in their own exceptional status and infallibility somehow prevented them from completely thinking out the production cycle and making it completely safe. "After the plutonium is isolated, there remains a considerable amount of waste, taking the form of a liquid mixture of radionuclide fragments of high radioactivity that generates numerous problems in their storage"—such was the conclusion reached by biophysicists analyzing the causes of the half-century-old "Mayak" crime today. "We now have the technology for processing liquid radioactive wastes into solid blocks. But it did not exist in the 1950s...."

It is possible, and fully probable, that the atomic scientists did not have the corresponding technology. But they must have had an idea of the potential danger posed by the "dead water" that was collected in special containers, and about the proximity of radioactive waste storage to natural water basins—lakes, rivers and groundwater flows. Were the outstanding scientific minds and the pride of Soviet atomic industry so naive and helpless?

The truth most likely lies in something else. They knew of the danger in general and of the danger to the local environment in particular, but all of these were "minor things" that distracted from the strategic objective posed by Stalin. First the bomb, and only after that, the technology of safe storage of wastes and all of the other "nonsense." The goal justified the means! The subsequent tragic events only confirm this cynical technocratic motto of the creators of the "nuclear shield."

Tragedy on the Techa River

Here is what happened. The intense work of isolating plutonium and uranium stressed the plant, and multiplied the quantity of radioactive wastes. They had to be gotten rid of quickly, and one day one of the executives of "Mayak" gave orders to dump the "dead water" through a system of settling ponds into the Techa River, the closest to the chemical plant. That this step was taken fully consciously is evidenced by the fact, established by experts, that 13 such poisonous discharges occurred. And here is the opinion of specialists regarding the lethal power contained within them: "The magnitude of the radiation risk of neoplasms in persons exposed to radiation along the Techa River was comparable with the radiation experienced by people in the atomic bombing of Hiroshima and Nagasaki." No two ways about it! A "quiet" explosion, equal in its destructive radioactive power to that of those devilish nuclear devices, occurred on a small river in the Urals. But the difference is that while the whole world knows about the nuclear nightmare of World War II today, only a few thousand know about the tragedy on the modest Techa, and even they came to know of it in only the last 2 years. For half a century the facts regarding the discharges of the "dead water" were held in the strictest secrecy, and the public was fed sophisticated demagoguery and outright lies—just to cover up the terrible truth from the people as deeply as possible. And the truth consisted of more than just these facts alone.

The fact is that the little-known Techa winds across 240 kilometers of Chelyabinsk and Kurgan oblasts, and people have been living along it for centuries. Back in the early 1950s there were around 40 large and small settlements here with 28,000 inhabitants—Tatar and Bashkir peoples in the upper reaches, and Russians along the middle and lower reaches. For centuries the clean Techa was the main and in some places the sole water supply for the inhabitants and for irrigation of farm fields and orchards, and both the young and the old swam in the river, caught fish from it and washed their clothes in it.

"Dead water" containing lethal radioactivity does not differ in its appearance in any way from ordinary living water. Suspecting nothing, for 3 whole years the peasants and their children drank the poisoned water and the poisoned milk, swam in the poisoned river and ate the poisoned fish in the same old way. The toxic doses they received were monstrous. For example the average discharge into the river was 4,100 curies per day. A total of 2.7 million curies of radioactive wastes were dumped into the Techa in the period from 1949 to 1956.

It was not until 1951 that strangers carrying instruments in their hands appeared in the towns and villages along the Techa. They went around measuring something, and writing something in their notebooks, but they categorically refused to come in contact with the local inhabitants, and all the more so, answer their questions. Later on, the people with instruments were replaced by militarized teams, which also wasted few words and had no intention of giving any explanations: They had been ordered to organize immediate resettlement of the inhabitants of most towns along the Techa into other rayons of the oblast. The military were not

even informed of the reasons for the sudden and essentially forcible deportation. Nonetheless, the large Tatar towns of Muslyumovo and Brodokalmyk were left alone beside the poisoned river. They were too large, and they would have required too much trouble and expense. If only it had ended with this.

On 29 September 1957 a new calamity befell the inhabitants of a number of cities and towns of Chelyabinsk, Sverdlovsk and Tyumen oblasts. A storage container filled with highly radioactive wastes—around 70-80 tonnes—blew up at the radiochemical plant. The explosion was so powerful that it raised the lethal liquid to an altitude of 1 kilometer, and the resulting radioactive cloud moved in a northeasterly direction, forming the 300 kilometer Southern Ural Radioactive Trail (VURS).

As it turned out, according to the scientists the consequences of this accident were not as terrible as the tragic events on the Techa. Nonetheless, this radioactive trail is painful to nature and the thousands of inhabitants of this distant Ural area.

A River Behind Barbed Wire

The road to the town of Muslyumovo passes a cemetery: The birches are bent to the breaking point with their burden of snow, and hundreds upon hundreds of grave markers bearing tin Muslim crescents slumber in the snow.

We stopped beside a steep river bank. This is not a safe place to dwell, which is why barbed wire is stretched along the entire bank, and the substantial masonry buildings of the former children's boarding residence hall and mills have long been vacant. Huge holes and cuts can easily be seen with the naked eye through the barbed wire, and a wide footpath stretches across the ice of the long-suffering Techa. From time to time you can see the stirrings of the lazy figure of a policeman on the opposite shore having the job of keeping the town's inhabitants out of the radioactive zone. The policeman had come to understand the uselessness and meaninglessness of his mission long ago, which is why he doesn't put any special effort into his work. He complained to me:

"These people are a lot of trouble. We keep fining them for crossing the wire, but they still force their way into the contaminated zone. If we catch a first-offender in the zone, he gets a warning, while the second time he gets a fine. The young boys are especially a great deal of trouble—they're always hanging out near the river."

The sentry himself learned the truth of the danger concealed behind the wire just a year and a half ago, but even now you can see from the way he smirks that he doesn't take this invisible threat seriously.

Now imagine just for an instant the life of Muslyumovo's inhabitants, who were suddenly cut off from their beautiful river by barbed wire for reasons never explained to them. Their situation is fully comparable with serving an unending term of punishment—prohibitions are all around them. Who passed this sentence upon them, and for what? Add to

this the terrible diseases generated by exposure to radiation. I have tapes of the numerous complaints of peasants living in the town of Muslyumovo.

Here is just a small sample:

"The skin on my legs is like rust. The doctors say that this is eczema, but I still haven't had any children. They say that the river is to blame. If they had at least moved us to another place, or helped us in some way. The victims of Chernobyl are getting all sorts of help, but our condition is far worse...."

"Children are still swimming in the river, and livestock, chickens and geese frequent the bank. No one has ever explained to us in an understandable way why the river water is harmful. We know nothing or almost nothing about our diseases."

I was told of family tragedies in which children died before their parents, about entire streets dying away, and about fear for the life of children and grandchildren, and their future.

It is next to the town of Muslyumovo that the numbered city and industrial facility that we now know to exist thrive. Judging from everything, enterprise executives and leading specialists are not suffering from remorse of conscience, they sleep at night, and they do not suffer eczema and painful joints. They are certain that the tragedy of the dozens of Tatar and Russian towns on the Techa and the Kyshtyma has absolutely no relationship to them. Their technocratic logic fully justifies the goal and means of yesterday's and today's nuclear programs, meaning that there were none and are none to blame. Here is a typical monologue by one of the executives of the "Mayak" Production Association. He asked that his name be withheld.

"I do not feel myself to be the pilot aboard some sinking ship, and I'm not sitting on a powder keg. I know quite well the ways in which our unique production operation could cause problems, but thank God, we have been working 40 years without any disturbances. The accident of 1957 had basically nothing to do with ecology, of which I'm certain. Back then, we didn't have the necessary knowledge, and now we do. So excuse me for that! And Chernobyl happened not due to imperfections in technology but due to violations committed by the personnel. Consequently we are working quite calmly, and we will continue to work in this way in the future. I'm also certain that the country needs our technology, it needs the objects we are creating. Without this, the state could not exist. It's time everyone else understood this!"

Of 28,000 rural inhabitants subjected to radioactive contamination on the Techa River, around 10,000 have already died before reaching the lowest limit of the life span in the country.

They're Doing Everything They Can

However, let's be objective. Seventeen years after the tragic discharge, professionals from the Chelyabinsk affiliate of the Biophysics Institute (FIB-4) interested in the problem occupied themselves with the destiny of the suffering

people. There were specialists in radiation safety and biophysics and physicians among them. They took years to compile a complete register of all who experienced even a smidgen of radioactive contamination. I saw this impressive card library, in which a special card bearing exhaustive information on degree of radiation exposure, dynamics of disease development and results of periodic checkups and treatment is drawn up on each patient. Such information on patients has now been entered into a computer, which could be used to find, in just a few seconds, the recordholders among inhabitants of the town of Muslyumovo in terms of the concentration of strontium-90 in their bones. Fifty-six-year-old Anna Alekseyevna Gavrilova has no rivals here—6,206 microcuries of strontium-90. And another 75 inhabitants of Muslyumovo have more than is permissible—over 2,000 microcuries. By the way, it was scientists and engineers of the Chelyabinsk affiliate that built a unique device for determining the concentration of strontium-90 in the human skeleton, one with no equals in the country or the world.

"We are trying to treat all forms of disease among people in our card library," said Mira Kotsenko, director of the FIB clinic. "But all of our patients are in one long line. Tumor patients have been standing in it for 2 to 3 months, and while they stand in it, their tumors grow, to the point where they need help no longer. The fathers of the oblast, and especially the directors of 'Mayak,' are maintaining surprising tranquillity in the face of the entirely obvious fact that the tragedy on the Techa River and the Eastern Ural trail cannot be written off due to some sort of statute of limitations. The department that caused radioactive contamination of the environment on such a scale is obligated to provide the necessary medical and social guarantees to inhabitants of the affected towns and cities. And I am certain that it's about time we made them equal to the benefits afforded to victims of the Chernobyl accident."

By the will of the secret department, which imposed a resounding veto on all information about the tragedy, doctors did not have the right for decades to tell patients from Muslyumovo and other towns not only about the degree of their dangerous exposure, but even about the fact that they had been exposed at all. The word "radiation" was excluded from medical usage.

People suffered terribly, and died of leukosis, cancer and radiation sickness, while the physicians were forced to lie, to hide their eyes, to make things up.

Today the veil of secrecy over the events of half a century ago is finally being lifted. A number of highly authoritative government and deputy commissions have started the work of making objective assessments of the ecological and radiological damage in Chelyabinsk, Sverdlovsk and Kurgan oblasts, and of delimiting the ecological disaster zones here. Increasingly larger numbers of inhabitants of Southern Ural cities and towns are becoming conscious supporters of the "green" movement, protesting against the deleterious technocratic policy carried on in the industry-oversaturated region, and against new atomic programs conceived supposedly for the good of the people.

Excessive Atmospheric Pollution Noted Over Cities*PM2805154793 Moscow IZVESTIYA in Russian
26 May 93 First Edition p 1*

[ITAR-TASS report under "From Our Correspondents and News Agencies" rubric: "State Committee for Statistics on Ecological Situation in Russia"]

[Text] Each month in the first quarter of 1993 organs of the Russian Committee for Hydrometeorology noted in the atmosphere over 10-20 Russian cities the presence of pollutants which exceeds by 10 or more times the maximum permissible concentrations.

According to data of the Russian Federation State Committee for Statistics, instances of high atmospheric pollution were recorded in Aleksandrovsk-Sakhalinskiy, St. Petersburg, Volgograd, Moscow, Vyborg, and Magnitogorsk.

Third Nuclear Reactor Shut Down on Kola Peninsula*LD2705183193 Moscow ITAR-TASS in English
1606 GMT 27 May 93*

[By ITAR-TASS correspondent Veronika Romanenkova]

[Text] Moscow May 27 TASS—The third nuclear reactor of the VVER-440 type has been shut down at the Kola nuclear power station at 05.30 a.m. today.

As a result of the pressure drop in the first contour of the reactor, caused by false opening of the valves of the pressure compensator, an emergency defence system was activated, shutting the reactor down.

Experts say that no radiation contamination was registered in service rooms, on the territory and beyond the nuclear power station. At present, experts are estimating on what level on the international scale this incident can be measured. According to preliminary estimates, the incident will be qualified as not exceeding the second level.

A more serious accident occurred at the Kola nuclear power station on February 2, 1993, when, following a heavy storm, the normal operation of the nuclear power station was interrupted and all four reactors were shut down as a result of the activation of the emergency defence system.

Kola Peninsula To Get Radiation-Monitoring Network*PM0906113793 Moscow PRAVDA in Russian
8 Jun 93 p 1*

[Aleksandr Khramtsov report under "Briefly and Clearly" rubric: "Beginning To Monitor Radiation"]

[Text] Last Sunday in the settlement of Verkhnetulomskiy Norwegian specialists began to install an automatic station to monitor background radiation. It is planned to complete the installation work within 5 days. This will be the first of eight such stations which are to monitor radiation on the Kola Peninsula, which has the world's largest concentration of nuclear installations. Residents of Murmansk will carry out the monitoring work together with the Norwegian ecologists. The administrations of the Norwegian and

Finnish provinces adjoining Murmansk Oblast are financing the entire program to create the network of stations.

Environment Seen as Factor in State's Prosperity, Security*93WN0433A Moscow KRASNAYA ZVEZDA
in Russian 21 May 93 pp 2-3*

[Article by Mikhail Rebrov under the heading "Russia's Interests and Ecology": "The Alarm Is Not Just Sounding Over the Aral Sea"]

[Text] The prosperity and safety of any state are the product of many factors: scientific and industrial capability, stocks of strategic raw materials, numbers and quality of defensive and offensive weapons, mobilizational resources... But this list would be incomplete if the environmental factor were not included in it. Especially since nowadays our country's "natural pulse" is beating more rapidly. And irregularly, too—something that indicates a serious environmental ailment. A little while longer, just a few decades, and even the most skilled doctors are going to throw up their hands and say: there is nothing more to be done.

The world around us has become too fragile, with environmental disasters constantly convulsing it: Chernobyl and Tomsk-7, the explosions in Yekaterinburg and Arzamas and on the gas pipeline between Ufa and Chelyabinsk, the toxic spill in Yaroslavl... Only a few years ago we talked about saving the world from a nuclear disaster. Now we are talking about environmental problems.

Alarming Statistics

The fact that the world around us is changing is an obvious truth. All the favors that we have so heedlessly accepted from mother nature have come back to haunt us. By felling forests, building dams across rivers and tilling the black earth from horizon to horizon we have changed the landscape of Russia, a great country where our ancestors have lived for centuries. And if we do not stop immediately, right now, then no one knows what inheritance our grandchildren might receive.

We journalists are often accused of overly dramatizing the situation. However, we can respond to that charge with specific facts and figures that require no commentary. For instance, 20 percent of our fellow citizens live in environmental disaster zones, and another 35-40 percent live under environmentally unfavorable conditions. As a result there has been a rapid increase in the incidence of disease, and Russia's population growth continues to slow with each passing year. The number of areas where the mortality rate exceeds the birthrate has increased by a factor of three over the past 12 years, and 30 percent of our population die before reaching retirement age.

Each year our country has 700 major explosions along oil and gas pipelines. This results in losses of between 7 and 20 percent of all the oil we produce—tens of millions of tonnes. In our chemical industry the proportion of worn-out fixed production capital is now at 75-80 percent, thus increasing

the likelihood of highly dangerous accidents. Environmental disasters could kill just as many people as an armed conflict.

Forests burn; runoff water laden with toxins spills into rivers and lakes; choking smog hangs over both cities and factory towns. Under the onslaught of civilization the biosphere's viability is diminishing before our eyes. Experts warn of a global environmental disaster somewhere between the years 2020 and 2050 if we do not sharply change our scientific and technical course. This is not an attempt to instill fear. It is a warning.

The Countryside After "Innovations"

Judge for yourself. During only a portion of last year there were 23,386 forest fires. In addition to the fact that these caused huge material losses, the environmental situation is also worsening significantly. The atmosphere is being filled with soot, smoke and carbon dioxide (between 30 and 150 million tonnes per year). This problem is more serious than it might appear at first glance. According to experts Siberia's vast forests could disappear in a single decade—just like the tropical rain forests, and with the same terrible consequences. The Siberian taiga covers 6.5 million square kilometers (comprising approximately 21 percent of all forests on Earth). It removes 75 percent more carbon dioxide from the atmosphere than the forests of the Amazon Basin do, thereby saving the planet from overheating. Yet the active clearing of our forests continues, and the rate of taiga destruction could accelerate due to Russia's current economic difficulties and loss of central control.

In our relations with nature we have yet to establish either an alliance or an equal partnership; we use it selfishly and without conscience, for it demands nothing of us. Recall Bazarov's response in Turgenev's "Fathers and Sons": "Nature is not a temple, it is a workshop." After the literary heroes it was the politicians' turn to state the orthodox line: "Expect no favors..." "Man is the master..." "Let us turn the rivers around..." And then they set to work. The temple is collapsing before our eyes, yet we, either indifferently or rapturously, continue to devise new projects around the world at every scale for the remodeling of our "workshop."

Russia's population produces so much solid household waste that its dumps are beginning to assume the characteristics and scale of geologic processes. They occupy hundreds of hectares, form a "stratum" tens of meters thick and are already seriously influencing the circulation of substances in the biosphere. Dumps have been found to contain a tremendous amount of carbon, nitrogen, heavy metals (zinc, lead, copper, mercury, etc.), exceeding normal concentrations by factors of tens and hundreds. This is causing geochemical anomalies and adversely affecting the surrounding environment.

Another aspect of this problem is change in land usage. The total volume of mineral extraction and mining activities in Russia doubles every 12-15 years. In recent years we have mined 20 million tonnes of rock per year, but less than 15 percent of this huge mass is processed into a finished product. Each year more than 1,000 hectares of farmland are converted to building materials production in this country. Incidentally, last year enterprises in the building

materials industry discharged 1.8 million tonnes of pollutants into the atmosphere. Air pollution not only has an adverse effect on the human organism, it also reduces agricultural yield. For example, in the vicinity of the Kursk magnetic anomaly crop yield has dropped by 20-40 percent over the past decade.

We must not blame haste, lack of understanding or unfortunate miscalculations for these anti-environmental actions. I want to pose an extremely specific question: who established a system under which construction can be launched on groundless projects? Who then rejects those projects and terminates them after hundreds of millions and billions of rubles have been scattered to the wind? Who is responsible for the fact that thousands and thousands of kilometers of our land are scarred by trenches, deep ruts and bare ground?

The Growth of Reason

Russia is huge, its natural and climatic zones are diverse, and its animal and plant life is rich. But the sword of Damocles hangs over that wealth. One of the most serious causes of the extinction of natural species, loss of original stocks of cultivated plants and disappearance of domestic animal breeds is pollution of the environment with toxins, i.e. with substances that damage the genetic apparatus of animals and plants.

Water is another subject. In Russia water was for a long time not considered a resource. Only now that rivers and lakes are polluted (each year more than 22 cubic kilometers of waste water are discharged into the Volga-Caspian basin alone) have we finally grasped the fact that water is the most important raw material resource of all. It has begun to be in short supply even in areas that have always had abundant natural sources.

Drinking water is unsatisfactory in terms of its chemical sanitation indices in Tomsk, Amur, Arkhangelsk and Tyumen oblasts (in 58-65 percent of cases), and drinking water that does not meet sanitation requirements for biological indices has been found in Kalmykia, Kaliningrad Oblast and other regions, with the rate of incidence varying between 25 and 49 percent of cases. Chlorination of tap water rids it of microbes but adds carcinogenic substances to it. This is the conclusion reached by American scientists. Anyone who drinks unboiled chlorinated tap water increases his or her chances of getting cancer of the bladder or rectum.

Of course, the greatest strategic miscalculation of past years cannot be corrected overnight. Our drinking water collection stations still use surface water at a time when the West has long since been using deep ground water as its drinking water source. But we are original about that too—we pump industrial wastes into our ground water. Another time bomb is the chemical weapons lying on the bottom of the Baltic Sea and other bodies of water.

And Still the Bell Rings

I do not wish to alarm readers with speculation about the radiation situation in a number of regions. The problem exists. It is also an ominous warning of what careless

handling of our common hidden enemy, this invisible killer, could lead to. This is our ever-sounding alarm bell.

An event that occurred in April—the explosion of a container of uranium-containing industrial compound at a Siberian chemical combine—spread radioactive contamination over an area of 200 square kilometers. And even though from a technical standpoint that accident is not comparable with Chernobyl, it reminded us all of the nuclear risk factor.

What is happening here in Russia now that we have set out on the road to a market economy? A market economy is based on profit. By any means, as much as possible and as quickly as possible. And if there is no income to be gained from “clean” production, it is nature that will be sacrificed. As a result we are left with poisoned air and water and contaminated soils, and we see natural resources being barbarously exploited. Why? Is it really not clear that we are doing something wrong?! The common shortcoming, if not the flaw, of all projects, past and present, for restoration of our economy and our entire society is that the environment plays only a secondary role in them.

Today the time has come to introduce very severe criminal penalties. Is that bad, is that improper? Well, is it proper to die of an environmental crime? Since we cannot grasp with our minds what it is that we are doing, could we not at least create environmental legislation that follows the examples that exist around the world? And could we not have a few criminal trials and increase people's level of environmental responsibility? Or is our state incapable of this?

The Russian Federation Law on Environmental Protection was only passed last year. Laws on nuclear energy and radiation protection and on environmental safety are still “brewing” in parliament. Meanwhile time is passing swiftly, and therefore we need immediate and coordinated actions by all branches of government—legislative, executive and judicial. Preference should be given to actions, not to speeches. The law should with all severity make specific guilty parties answerable for damages to nature or to the health and well-being of specific individuals. And not out of the state's pocket, but out of their own. Lawsuits in response to environmental crimes should become the rule, not an exception made to go along with the latest campaign of “green” protest.

Yes, we do need “clean” technologies and we need enterprises that can guarantee that they will operate without emissions. But we also need “idiot-proof” technology. It is not hard to confirm that idea. Statistics concerning accidents in transportation, at industrial enterprises, at storage sites and at nuclear power plants indicates that we do not have any reliable obstacles to prevent anybody who comes along from interfering, with disastrous results.

Another problem is that efforts are primarily being directed toward elimination of the effects of accidents rather than their causes. We will not be coy: we do have environmental disaster areas in our country. The problem is that they have not been legislatively demarcated. The reasons for this are understandable, though there are those who prefer not to publicize them. Declaring areas ecological disaster regions

or zones would mean shutting down virtually every industrial enterprise. That is what the law requires. But that would mean depriving many thousands of people of their livelihood. Economists and ecologists agree that profits received by industry in those regions, if they go toward improving the environmental situation, should not be taxed.

Survival Strategy: Ours and Theirs

I have had the opportunity to attend international environmental forums, meet with members of the World Resources Institute, the activities of which are financed by various companies, funds and the United Nations, and visit the Brookhaven Laboratory (New York) and the Japanese Environmental Protection Center... This comparison of their capabilities with ours allows me to draw some conclusions. A Western experiment of many years' duration, the objective of which is to combine the efforts of politicians, scientists and religious figures and find out whether these people of various professions and beliefs can find a common language regarding the problem of human survival, has proven successful. Now the governments of many countries have realized that it will be impossible to achieve progress in the environmental field without improvements in the economy and without certain expenditures. In this view lies one of the keys to rectifying the situation.

There is another key: application of science to solving the problem, and use of foreign experience. For instance, the Mediterranean Program, which could serve as a basis on which to prevent the “extinction” of the Black Sea. “If you do not listen to what scientists are saying now,” said Akio Matsumura, “then in the future you will have a global version of the Aral Sea.”

In my visits to various corners of the globe I have become convinced that we desperately need to conserve energy, and that is possible only through efficient use of the market economy that will take into account not only actual cost, but also the expenses incurred as a result of environmental disasters.

Foreign experience also indicates that merely improving technology will not help in the struggle against environmental pollution. It will be necessary to create a technology of thought and apply the biblical injunction not to kill to nature as well. Norway has drawn up plans to establish special military units, the purpose of which will be to combat the effects of environmental disasters—and to do so skillfully and efficiently. Soldiers in these units will be called “green warriors.”

In Japan and the FRG garbage does not rot in dumps, it goes to reprocessing centers. Lester Brown (United States), talking about environmental morality, convinced me that there is not a single American company that would take the risk of putting off installation of anti-pollution devices until they were finished building their factories and plants. That is where they start, and that is the rule for everyone.

Projection Without Errors

There is also another facet to this problem. The environmental crisis is blending the future of individual peoples into a single worldwide future. A country that pollutes the environment suffers, but other countries suffer as well, because air and water pollution affect its neighbors as well. And if that country spends money for environmental protection measures, that means that a considerable portion of that money is being spent on neighboring countries as well. Therefore we must pool our efforts. The common problems that face humanity should have common solutions.

One of those solutions is international monitoring. Not just monitoring of the state of the environment, but of all the things that could potentially kill it. In order to preserve nature we must ensure that the people themselves—children and adults, military and civilian—begin to realize the importance of nature and change their attitudes toward it.

There exists a non-governmental project by Russia and the United States to create a unified ground-air-space system to track the state of the environment all over the globe. In other words, to use SDI for environmental purposes. This new project is not isolated from those that are already being implemented or have been proposed by Russia and other countries. This is a complex and very expensive undertaking that is beyond the scope of either state alone. Yet each of them also has two other expensive undertakings: armament and military-to-civilian conversion.

And one last thing: there exists a method of mathematical modeling that makes it possible to run through various scenarios and arrive at a fairly precise end result. The popularity of this type of modeling reached its zenith when Academician N. Moiseyev calculated the effects of "nuclear winter." At that time scientists arrived at some very sad conclusions. The time has come to enter into a machine all of humanity's thoughtless acts toward nature. This analogy is not excessive—the threat of a biological apocalypse really exists. Either we preserve the world of nature, or else it will fail to preserve us.

There is no other choice.

Moscow City Plans Cleanup of Energy Sector

Pollution Said to Hinder Investment

93WN0424A Moscow KOMMERSANT-DAILY
in Russian 6 May 93 p 9

[Article by Irina Matveyeva: "Investors Prefer Environmentally Clean Regions"]

[Text] Yesterday's meeting of the Moscow government discussed the environmental situation in the city and the influence of the pollution by enterprises belonging to the energy complex on the city's air. Among other things, basic guidelines were defined for the activities of the city administration in improving the environment for the period up to 2010. As noted at the meeting, the state of the environment is one of the key indices for potential investors considering decisions to acquire real estate in the capital.

In its meeting, the capital's administration showed understanding of the fact that, in order to maintain an image attractive to investors, the city needs a favorable environmental situation. But at present, as was admitted, the state of the environment in Moscow is extremely unsatisfactory. The air is especially polluted, for which the enterprises of the capital's energy complex are, for the most part, guilty. Thus, the Mosenergo [Moscow Energy] Joint-Stock Company's annual share of the pollution of Moscow's air by enterprises comes to more than 23 percent for nitrogen oxides, 60 percent for sulfur oxides, and 26 percent for solid suspended matter.

It was decided at the government's meeting not to economize on environmental protection and, to back up that decision, the readiness to finance, "within the limits of what is possible," measures for cleaning up the air was announced. In particular, this year monies will be allocated for installing equipment to register the level of energy use, as well as equipment that traps pollutants, in the city. The financing mechanism is fairly simple—deductions for environmental purposes are provided through a tariff on enterprises' use of electric and thermal power. In order to accumulate the necessary money to develop the Moscow government's 2 February 1993 decree, provision was made at yesterday's meeting for the establishment of a special-purpose division of the Moscow Environmental Fund at Mosenergo. According to preliminary estimates, about 2 billion rubles will be required this year to implement the program of environmental-protection measures in the area of power engineering.

Questions pertaining to the affect of the state of the environment on operations involving real estate were also touched on in the meeting. Thus, the direct relationship between prices for parcels of land within the city and the condition of the environment was noted—the more environmentally clean the region, the higher the prices. Incidentally, the northwest and western parts of the city were deemed by the administration to be the regions with the lowest amount of pollutants. As for the center of Moscow, in the experts' opinion, land prices there remain high, regardless of the environmental conditions.

The Program of Environmental Measures in the Area of Moscow Power Engineering provides for:

- establishing a system of automated monitoring of environmental pollution
- carrying out technical measures to reduce concentrations of pollutants in the atmosphere
- a campaign against noise pollution arising in the operation of boilers and gas-distribution and heat-distribution stations
- carrying out technical measures to recycle waste and reclaim territories adjoining central heat and electric power stations
- systematic provision of information and education of the public through the mass media and appropriate services of environmental organizations

New Energy Taxes Considered

93WN0424B Moscow NEZAVISIMAYA GAZETA
in Russian 7 May 93 p 2

[Article by Vladimir Gurvich: "Environmental Program for Power Engineering"]

[Text] A regular meeting of the Moscow government was devoted to considering a program for improving the environmental situation in the city's power engineering. As of today, Mosenergo's "contribution" to polluting the environment is one of the most substantial. In this connection, a set of measures was drawn up that, as the authors intend, should make it possible to reduce the harmful discharge of petroleum products by a factor of 8-10 and that of sulfides by a factor of 5-6.

In order to carry out this program, a great amount of work requiring considerable financial outlays must be done. Therefore, a mechanism for financing the measures has been provided: the necessary monies should be included in tariffs on thermal and electric power. This year 1.750 billion rubles will be spent for these purposes.

At the same time, some of those who spoke stressed that this program should become part of a more general environmental program for the capital's energy complex. Therefore, the government took a decision to return to the consideration of this question in a month, taking into account the criticism that had been expressed.

Industrial Accidents Pose Growing Threat to Environment

93WN0450A Moscow ROSSIYSKIYE VESTI
in Russian 4 Jun 93 pp 3-4

[Article by Svetlana Stepunina: "Vladimir Karasev, Responsible Secretary of the Russian Federation President's Council for Ecological Policy: 'And the Committee for Emergency Situations Will Become the Country's Leading Ministry...'"]

[Text] This bitter prediction by Aleksey Vladimirovich Yablokov at a recent meeting of the Russian Federation President's Council for Ecological Policy is a warning from a specialist who has made a deep scientific analysis of the situation in Russia. This situation is generally characterized by the following data. Each day two major pipeline accidents occur in our country. A transportation accident occurs once a week. An industrial accident occurs each month. Once every half year Russia is shaken by disasters requiring tens of billions of rubles to eliminate the consequences. The acuity of the problem, which is so closely linked to the health and even the life of people, made a large-scale study necessary. It was carried out by the Goskomprom [Russian Federations State Committee for Industrial Policy], Gosatomnadzor [State Committee for Supervision of Nuclear and Radiation Safety], Gosgortekhnadzor [Russian Federal Mining and Industry Supervision], the Russian GKChS [State Committee for Emergency Situations] and the Russian Academy of Sciences. Today we acquaint readers with some results of the analysis, on the basis of what the

President's administration feels to be the dominant idea of its activity—the truth must not be concealed from the people.

Data on the scale of industrial accidents and disasters are presented sector by sector. The causes will be analyzed in the conclusion.

The disasters that have occurred in recent years at chemical enterprises in Ufa, Sterlitamak, Tomsk, Angarsk, Salavat, Stavropol and other cities, the continually occurring local explosions and collapses of facilities involving human casualties, and contamination of the atmosphere and water basins in a number of oblasts attest to the critical situation existing in complex technological systems.

In large industrial regions such as Angarsk, Usolye-Sibirskoye, Kemerovo, Ufa, Sterlitamak, Dzerzhinsk and others, the quantities of toxic and highly toxic products present in production areas at any one time are 100 billion lethal human doses of chlorine and 100 billion lethal doses of ammonia and prussic acid.

Last year 82 accidents involving destruction of production facilities and release of sizable volumes of toxic substances into the environment occurred at enterprises and facilities of the chemical complex. When chlorine was released from the Soda Production Association in Berezniki because of corrosive wear of a filter body, the gas wave went as far as the train station and residential district. Chlorine was discharged into the atmosphere for 16 minutes at the Bratsk Chlorine Plant when a leak developed in the body of an evaporator's condenser.

Pollution of the environment, including Ural rivers, on a large scale by phenol occurred in February of last year as a result of an accident at the Orsk oil refinery of the Orsknefteorgsintez Production Association. The pollution occurred because of deficiencies having their origins in the planning stage: The plan did not foresee a level gauge on the container that could have signaled a warning to personnel that it was overfilling and that phenol was spilling into the areaway.

A phenol leak occurred in November 1989 at the Khimprom Production Association in Ufa during transfer of phenol. The phenol dissolved with the onset of spring (in March 1990) and the floodwater season. Floodwaters saturated with phenol solution polluted the basin of the Shugurovka River (a tributary of the Ufa River), and seeped into the catchment area and into the city water supply system, where its concentration exceeded the maximum permissible by 25-30 times. For a long time the southern part of the city was deprived of normal water supply, which created acute social tension in the region.

On the whole, each year around 1,500 accidents associated with leakage of explosive and toxic products from production systems, fires, explosions and discharges of contaminated water into water basins occur in the chemical sectors of industry.

Accidents accompanied by explosions and spills of large quantities of liquid, gaseous or mixed hydrocarbon fractions, their processing products and associated ecologically harmful components (hydrogen sulfide, carbon dioxide etc.)

are the most dangerous in the petroleum and gas extracting sector in terms of ecological consequences. Major accidents occurred in the Angarskneftorgsintez and Gorkneftorgsintez associations. The number of fires and cases of environmental pollution associated with storage of petroleum products and filling of rail tank cars with petroleum products and liquefied hydrocarbon gases is not decreasing. Gushers during which uncontrolled ejection of oil, gas and gas condensate occurs and formation of craters and pits around the well head is possible are ecologically the most dangerous events during drilling of petroleum and gas wells.

Last year nine such gushers occurred, while in January-April of 1993 six have already occurred. Gushers created by the Tyumenburgaz enterprise at the Komsomolsk deposit in August of last year and by the Sakhalinorgneftegaz Production Association in October 1991 were the most serious in terms of ecological consequences. They are still out of control today.

The practice of placing oil deposits into operation without setting up byproduct petroleum gas collecting systems is still going on in the sector's petroleum and gas extracting enterprises. In 1990 the utilization level was 80.5 percent, while in 1992 it decreased to 79.6 percent. In this case 8.2 billion cubic meters of byproduct petroleum gas were burned off, including 6.3 billion cubic meters in Tyumen Oblast. This does enormous damage to the environment and essentially has global significance.

As before, facilities of the first phase of the Astrakhan gas complex continue to be operated under unstable conditions because of the presence of a number of unfinished facilities, considerable wear of the equipment, unsound technical concepts and complex mining and geological conditions. A specially monitored health protection zone was established around the deposit, but the requirement that people residing within it be displaced has still not been fulfilled by the administration of Astrakhan Oblast and the Gazprom concern.

Besides being responsible for toxic discharges into the atmosphere, deposits containing an elevated concentration of hydrogen sulfide present significant danger during drilling when communication is established between beds of products containing hydrogen sulfide and the water beds lying above them. Poor technological discipline during construction of gas wells results in gas leaks from productive beds into upper water-bearing horizons, and then the gas reaches the surface (the Komsomolsk and Bovanenkovskoye deposits in Tyumen Oblast, and a number of deposits in Arkhangelsk Oblast and the Komi Republic).

Last year 1,032 accidents and incidents involving transport of dangerous cargo were recorded on Russian railroads. The accident rate of pipeline transportation remains alarming. Just in the first quarter of 1993 over 34,000 tonnes of oil were ejected into the environment out of damaged pipelines, resulting in massive contamination of soil and water basins.

The problem of shipping and storing chlorine is especially acute. Each year 500,000 tonnes of this chemical are transported in Russia in rail tank cars, and around 90,000 tonnes

are shipped in bottles and containers by motor and rail transportation. Because chlorine is presently the sole disinfectant used on a major scale to treat drinking water and liquid wastes, and a raw material for a large number of industrial sectors, its transportation routes cover all of the territory of the former USSR. The average shipping distance is around 1,500 kilometers, while in some cases it reaches 4,500-5,000 kilometers. Meaning that the danger is everywhere: The chlorine problem affects practically all of us.

The ecological situation in regions adjacent to enterprises of metallurgical industry has become extremely acute. Construction of new high-output facilities in 1970-1990 resulted in continual accidental releases of sizable amounts of toxic substances into the atmosphere and water basins.

The ecological consequences are still acute following the accident that occurred in 1986, when a large quantity of benzene entered Rybinskoye Reservoir following its release from a storage facility of the tar distillation shop of the Cherepovets integrated iron and steel works. The ecology of this water basin has still not recovered from the damage.

Mineral mining enterprises and objects utilizing the subsoil for purposes not associated with mineral mining are extremely dangerous from an ecological standpoint. Thus, "induced" earthquakes arise in a number of regions as a result of mining operations and the resulting redistribution of stresses in rock masses. Strong, massive rock bursts have been recorded at mines of the SUBR and Sibiruda associations, the Norilsk mining and metallurgical works and at mining enterprises of the Kola Peninsula (apatite mines). These examples demonstrate that this new effect upon the environment resulting from mining operations is intensifying.

The accident rate at nuclear power plants and other facilities of atomic industry has not decreased in recent years. Accidents are especially dangerous in this sector because of the permanence and severity of the consequences to the environment and the health of the population. I am not going to get into this problem to any great depth (much is being written about it today). Let me just cite one example. Research carried out within the zone of the eastern Ural fallout trail in Chelyabinsk Oblast showed that 5 years after the accident, 10 species of dipteran insects (out of 23) disappeared completely from contaminated regions owing to an elevated concentration of strontium. What does this mean to man?

The danger of industrial disasters associated with military equipment increased dramatically in recent times. Explosions of ammunition dumps in Vladivostok and Bratsk, the disaster in Nizhniy Tagil and other places led to numerous human losses, and did not result in major industrial disasters only by chance. All of this forces us to classify military technology as one of the most important sources of potential danger, especially considering the high risk associated with storing and transporting nuclear, chemical and biological weapons.

On the whole, industrial accidents and disasters are an important negative factor in relation to the state of the environment and the health of the people. The death of

many living organisms and destruction of ecosystems may occur a long time after catastrophic anthropogenic processes, but the results may be irreversible. Disasters of this type are the most deleterious to natural aquatic and terrestrial ecosystems.

According to data of the Russian Academy of Sciences over 50,000 persons are killed and more than 250,000 are injured each year in accidents and disasters in the Russian Federation, together with losses of hundreds of billions of rubles.

These losses are increasing by an average of 10-30 percent every year.

Over 800 nuclear and 1,500 other facilities presenting a higher danger are operated on Russian territory, and accidents and disasters with a loss of over R1 billion occur an average of once every 10-15 years, ones with losses of up to R1 billion occur once every 8-12 months, and ones involving losses of up to R200 million occur every 15-45 days.

What are the causes of all of this?

First of all, wear and aging of a sizable fraction of the fixed capital. Seventy to seventy-five percent of fixed capital at enterprises of the chemical complex has been operating 20 years, while at a number of facilities the equipment has been operating for over 30 years. The degree of wear of fixed capital in petroleum extracting industry is high. Ninety petroleum extraction bases were built prior to 1917, and 283 were built in the 1950s.

Each year the number of unreliable pipelines (in operation for more than 25 years) is growing. The situation is especially alarming in the cities of Moscow and St. Petersburg, where hundreds of kilometers of gas pipelines have been in operation for over 40 years. Around 60 percent of boiler equipment has worked beyond its standard life.

The human factor dominates among the causes of accidents. Management of industrial safety has weakened dramatically in connection with the repeal of a number of departmental documents on safety procedures and the organization of safety practices, and delays in restructuring. New economic structures (corporations, concerns, associations) give little attention to the problems of ensuring the safety of industrial production.

The psychological situation in the country associated with the deep economic and social crisis led to a decrease in discipline and responsibility of people at all levels of production, which has doubtlessly helped to increase the number of accidents. Cases of violation of production discipline, brought about by the need for using low-grade raw and other materials, and associated with delays in preparatory work and weakening of attention to the prospects of production development, are occurring everywhere.

The high accident rate in industrial sectors is also in many ways the product of the absence of the necessary legislative base pertaining to prevention of emergency situations, and imperfections in the administrative, financial and economic mechanism that is supposed to raise the responsibility of enterprises and entrepreneurs for industrial and ecological

safety and their interest in solving the problems of raising the safety level of their facilities.

There are no economic mechanisms that make it possible to actively influence establishment of safe working conditions. The normative acts presently in effect do not let the economic levers and stimuli that would ensure safety operate to the full extent.

An analysis of the causes and consequences of the largest accidents showed that complex processing and technical systems, which present a doubtless danger to people and the environment, are designed in most cases using traditional planning rules and engineering calculation and testing methods.

There are no real scientific principles in our country's practice for ensuring industrial safety and the safety of complex technical systems, people and the environment based on risk criteria. Neither the Russian Academy of Sciences nor the sector academies and VUZes have been able to provide for scientific development of the concept of acceptable risk, widely encountered in the West, in application to the operating conditions of Russian industry.

The considerable weakening of bodies of state supervision is very alarming. This is associated primarily with departure of the most qualified specialists from them (chiefly in connection with poor wages).

On the whole, the system of bodies of state supervision requires further improvement, including an increase in its status. At the same time, supervisory bodies sometimes involve themselves unnecessarily deeply in the enterprises, and take over departmental control functions.

An alarming picture.... On acquainting themselves with the data presented by Vladimir Karasev, our readers will doubtlessly ask: What is being done, and is anything being done to prevent accidents and disasters, or at least diminish their negative consequences?

Responding to this natural question we report:

A draft Russian Federation law "On Ecological Safety" containing a number of articles associated with industrial safety has been written on instructions from the President of the Russian Federation and is now in the Supreme Soviet of the Russian Federation.

Together with the Gosgortekhnadzor the GKChS has written a draft law "On the Safety of Industrial Activity." The draft law "On Transportation of Dangerous Cargo" and the draft law "On Russian Federation Civil Defense" have been submitted to the government. Work on drafts of the following Russian Federation laws will also reach its conclusion in 1993: "On Traffic Safety in Rail Transportation," "On Explosive Goods," "On State Supervision in the Russian Federation." Development of a draft federal program titled "Safety of the Population in Emergency Situations Associated With the Storage, Production and Transportation of Chemically Dangerous Substances and Articles Made From Them" has been organized.

The Russian Minprirody [Ministry of Protection of the Environment and Natural Resources] has prepared and is

implementing a program titled "Ecological Safety of Russia," which contains a section devoted to industrial safety.

As our newspaper communicated earlier, decisions of the Russian Federation President's Council for Economic Policy contain a number of recommendations which, if followed, will doubtlessly reduce the effects of accidents and disasters upon the ecological state of the country and the health of the people. Here are some of them. Jointly with the Russian Gosortekhnadzor the GKChS will finish drafting the Russian Federation law "On the Safety of Industrial Activity," and develop and submit proposals to the government of the Russian Federation in the fourth quarter of 1993 on organizing systems of state expert examination in matters of preventing emergency situations, issuing licenses during construction stages, and placing potentially dangerous facilities into operation and operating them.

Jointly with the Mintopenergo [Ministry of Fuel and Energy] the Roskomkhimnefteprom [Russian Committee for the Chemical and Petrochemical Industry] and the Roskomoboronprom [Russian Committee for the Defense Industry] are to support the function of sector subsystems of the Russian system for preventing emergency situations and responding to them; jointly with the Mintopenergo the Russian Ministry of Railways is to develop a federal specific-purpose program in 1993-1994 titled "Safety of the Population in Emergency Situations Associated With the Storage, Production and Transportation of Chemically Dangerous Substances and Articles Made From Them."

In the fourth quarter of 1993, the Gosortekhnadzor and the Minprirody are to develop, with the participation of interested state committees, ministries and departments, an integrated program of measures to improve the technical standards base in regard to safety, with consideration for the best foreign experience in this area.

The Gosatomnadzor, Gosortekhnadzor, Gossanepidzor [State Committee for Sanitary-Epidemiological Supervision] and other federal supervisory bodies are to draw up proposals on improving the system of state supervision of the state of the environment, public health and the safety of industrial facilities, and on increasing the role of supervisory bodies in solving the problems of preventing industrial accidents.

The Rosgosstrakh [Russian State Insurance] is to develop, with the participation of the Ministry of Finance and the Gosortekhnadzor, drafts of standards on mandatory insurance covering liability for damage to the environment and third parties by accidents and disasters of an anthropogenic nature, and on mandatory insurance covering the property of enterprises and organizations against accidents and disasters of an anthropogenic nature.

The Ministry of Economics is to develop, with the participation of the Ministry of Finance and other interested ministries and departments, proposals on ways to economically stimulate enterprises and production operations presenting an elevated risk to undergo reconstruction, modernization and renewal of fixed capital through advantageous taxation, loan and pricing policy.

Prior to the end of 1993, together with the Minprirody, Gosortekhnadzor and other empowered bodies, the Mintopenergo, Roskomoboronprom and Roskomkhimnefteprom are to carry out a complete inventory of potentially dangerous facilities and production operations subordinated to them located on mining territory allocated to mineral mining enterprises, and develop measures to prevent accident situations.

WESTERN REGION

Ukraine: Seminar on Monitoring of Nuclear Power Stations Ends

LD2905150993 Kiev UKRINFORM in Ukrainian
1522 GMT 29 May 93

[By UKRINFORM correspondent Volodymyr Shevchenko]

[Excerpts] Netishin, Khmelnytskyi Oblast, 28 May— A seminar on the subject "Comprehensive ecological monitoring of Ukraine's atomic electric power stations" at Khmelnytskyi atomic electric power station finished today. It was organized by the scientific and technical center for nuclear and radiation safety of the State Committee of Ukraine for Nuclear and Radiation Safety and the Ukrainian Nuclear Society. [passage omitted listing participants]

The discussion was about how to establish supervision over levels of possible pollution of the environment as a consequence of the operation of atomic electric power stations; evaluation of the situation and the appropriate predictions; and adoption of management decisions on this basis in order to bring the effects of the pollution of the environment to a minimum, and by doing so to ensure the normal conditions for a person to function. In fact, all of this is part of the concept of ecological monitoring.

A decision on the necessity of introducing monitoring of Ukraine's atomic electric power stations was adopted at the seminar. The decision should be a separate block as part of single system of Ukraine's ecological monitoring. An appropriate working group was also set up for this. Summing up the work of the seminar, Serhiy Barbashov, executive secretary of the Ukrainian Nuclear Society, candidate of physical and mathematical sciences, and head of the laboratory for issues of atomic power engineering and ecology at Odessa Polytechnic, emphasized: We produced decisions at the seminar, the results of which will be introduced at all atomic electric power stations in Ukraine. This will make it possible to increase ecological and radiation safety both at the stations themselves, and for the environment and the population living nearby. In addition, ways of close interaction of atomic electric power station monitoring with other—one could say departmental—monitoring systems of Ukraine, which should ensure a single comprehensive ecological monitoring of Ukraine, the functioning of which should be raised to world level, were outlined.

Ukraine: Environment Ministry Supports Signing of Basel Convention

LD3005195193 Kiev Radio Ukraine World Service in Ukrainian 1500 GMT 30 May 93

[Text] Of late, instances of bringing the hazardous production wastes of foreign firms to Ukraine—with the mediation of local commercial structures and state enterprises—have become much more frequent. Agreements between foreign firms and [word indistinct] that receive hazardous wastes are concluded without the consent of relevant bodies of local authority and environmental protection.

In this regard, the Ministry of the Environment has declared that relevant state bodies of Ukraine should speed up the signing and ratification of the Basel Convention, which regulates the procedure of [word indistinct] toxic wastes, and also speeds up the adoption of a relevant law on the rules of handling wastes and introduces necessary changes in the customs code of Ukraine. In addition, it includes establishment of a state ecological control service on the border.

In the opinion of the Ministry of the Environment, bilateral agreements should be concluded with the governments of other countries on the regulation of the hazardous wastes transference across the territory of Ukraine, including the procedure of sending such wastes back to the relevant countries.

Ukraine: Zaporozhskaya AES Explosion Kills One, No Radiation leakage

LD2205073093 Moscow ITAR-TASS World Service in Russian 0629 GMT 22 May 93

[By UKRINFORM correspondent Vera Beregovaya for TASS]

[Text] Kiev, 22 May—N. Oberkovich, one of the technical managers of the Zaporozhskaya nuclear power station [AES], reports from Zaporozhye that an accident took place at 1628 on Friday at Zaporozhskaya AES fifth power generating unit, which is undergoing routine repairs. The manager qualified it as "an accident." The hydrogen used in the generator cooling system ignited during the maintenance work on the cooling system of the electrical generator in the turbine room, which is not connected with the reactor block. [Moscow ITAR-TASS in English at 0707 GMT on 25 May, in a similar report, states that "oxygen used for cooling the electrical generator at the turbine house ignited during repairs on the cooling system"] The equipment that ignited does not contain any radioactive substances.

The firefighting brigade and its personnel managed to eliminate the fire with available firefighting equipment and by turning off the supply of hydrogen. [Moscow ITAR-TASS English 250707 says by "stopping the oxygen supply"] Two workers from the repair unit received burns, as a result of which one of them died. The second worker has been hospitalized and is in serious condition.

The expert said that the equipment at the power generating unit has not been damaged. The incident did not affect the regional environment, he added. The radiation level at the

Zaporozhskaya AES is around 8-14 microroentgen per hour, which is within the limit of background radiation.

An investigation of the causes of the fire is underway. Power generating units 1, 2, 3, and 4 are carrying the nominal load. The technical manager said in conclusion that routine repair work is continuing on the fifth power generating unit.

Ukraine: Nuclear Station Fire Has 'No Effect' on Environment

PM2505091193 Moscow Ostankino Television First Channel Network in Russian 1700 GMT 22 May 93

[From the "Novosti" newscast: Video report by Gennadiy Klimov, identified by caption]

[Text] [Announcer to camera] In connection with a fire at a nuclear electric power station [AES] in Ukraine yesterday, the problems of nuclear safety on the territory of the former USSR have this morning once again been one of the main topics on the international news agencies. In some villages in the area of the AES today parents tried to shelter their children from the effects of radiation. But people have started to calm down following an explanation from the authorities.

[Klimov over view of front of AES] At the fifth power generating unit at Zaporozhye AES, which is undergoing planned repairs, hydrogen used to cool down the generator caught fire yesterday. Firefighting teams and station personnel managed to successfully put out the fire using standard firefighting equipment. The hydrogen supply was closed off. Two repair team workers sustained burns. One of them has died. The other was hospitalized and is in a serious condition. There is no damage to the equipment, so I was told at Zaporozhye AES. The fire has had no effect on the environment. The background radiation in the AES area is within the range of 8-14 microroentgens per hour. An investigation is being conducted into the causes of this tragedy. Four of the power units of this AES, the largest in Ukraine, are on nominal load while repair and preventive work is carried out on the fifth power unit, which was stopped for refueling. [Video shows inside and outside of nuclear power station]

Ukraine: Symposium on Chernobyl AES Reveals Opposing Attitudes

AU1506114993 Kiev HOLOS UKRAYINY in Ukrainian 11 Jun 93 p 3

[Oleksiy Breus report: "Arguments Are Not Yet Guaranteed"]

[Text] A symposium was held in Kiev on "The Chernobyl Atomic Electric Power Plant [AES]: Scientific-Technological, Economic, and Social Consequences of Political Decisions." It was organized at the initiative of Ukraine's Scientific and Technological Union of Power Engineers and Electrotechnical Specialists in order to obtain comprehensive information on the state of safety at the Chernobyl AES and to discuss arguments in favor and against the continued exploitation of its units.

The positions of the speakers regarding a further fate of the Chernobyl AES were clear even prior to the speeches. However, their arguments did differ.

Assertions to the effect that, in terms of many characteristics, RBMK reactors are better than reactors of other types were used in favor of a continued exploitation of the Chernobyl AES. Today, the Chernobyl AES is under control of various departments; no infrastructure for processing radioactive waste has been created yet; there is no concept for maintaining the zone of radioactive risk [zona vidchuzhennya] after the plant is shut down; social problems of its personnel have not been resolved, and so on. According to the estimates by the Ministry of Health, the exposure of the population to radiation will practically not decrease after closing down the plant, whereas its operation does not affect the ecological situation either in the Chernobyl zone or outside it. Of course, power engineers also spoke of the need for electric energy and of the large economic losses that may result from closing down the Chernobyl AES.

Opponents of the continued exploitation of the power units complete with RBMK reactors also referred to financial estimates. They insisted that very much money may be needed to render these reactors safe. It would be better to safe energy. For the time being, these reactors do not conform to contemporary or even former safety requirements. However, no changes in their design will rectify their shortcomings. Even normally operating AES' have a negative effect upon the environment, but atomic specialists are hushing this up. Who can guarantee safety in the future if the probability of accidents at an AES equipped with RBMK reactors is a hundredfold greater than normal?

Chairman of Ukraine's State Committee for Atomic Supervision M. Umanets tried to offer such a guarantee based upon his own experience and changes at the Chernobyl AES. It was, however, questioned by Minister of Environmental Protection Yu. Kostenko. It was not only due to the indisputable shortcomings of the RBMK reactors. He recalled that there is still no law in Ukraine on the safe utilization of nuclear energy, and the system of state regulation and management of atomic energy is such that the controlling organ—the State Committee for Atomic Supervision—is a member of the Fuel and Energy Complex together with the State Committee for Atomic Energy. It cannot, therefore, remain independent.

Participants in the symposium also voiced "halfway" proposals. V. Shovkoshtynny, president of "The Chernobyl Union" international organization suggested that, taking into account the reserves of nuclear fuel, the first power unit of the Chernobyl AES should be allowed to continue operation until spring and that the third unit should be halted when it starts interfering with the work on the "sarcophagus." This gave rise to indignation among the Greens, with whom V. Shovkoshtynny sided.

Neither the supporters nor opponents of the Chernobyl AES managed to convince one another. Emotions sometimes prevailed in the speeches.

Ukraine: Social Protection of Chernobyl Survivors Increased

LD3005153893 Kiev Radio Ukraine World Service in Ukrainian 1200 GMT 30 May 93

[Text] The president of Ukraine issued a decree on increasing the social protection of citizens who suffered as a result of the Chernobyl catastrophe. This decree supports the initiative of the Chernobyl Union of Ukraine and the Ukrainian National Foundation for Aid to Chernobyl Invalids as regards increasing social protection of citizens who suffered as a result of the Chernobyl catastrophe.

Ukraine: Ecologist Adamant on Need To Close Down AES

AU0706141593 Kiev DEMOKRATYCHNA UKRAYINA in Ukrainian 3 Jun 93 p 2

[Article by Anatoliy Zolotukhin, deputy chief of the Ukrainian Ecological Association "Zelenyy Svit" [Green World]: "The Critical Mass of Amoralism"]

[Text] It is believed that radioactive nuclides will have an effect upon people and nature over ten half-life periods. The fuel that was scattered after the explosion at the Chernobyl Atomic Electric Power Plant [AES] will influence nature and people over thousands or even millions of years. The Chernobyl tragedy will suffice for many generations. It remains to see what a half-life period is in the social aspect.

It is already clear to everybody that the world's greatest catastrophe occurred as a result of the critical mass of amorality that had affected a certain part of the former Soviet Union's society. No matter from which side one approached the analysis of the causes for the accident, one could not help seeing lies, deception, concealing negative facts by imposing secrecy upon them, hushing up mistakes, etc. We have only just learned that the designers of units RBMK and VVER [expansions unknown] were aware of the danger they involved. In addition to errors in the design, mistakes in choosing the site for the AES, shortcomings in its construction, the poor quality of equipment and installation, and grave mistakes in its exploitation.... also became known.

Recently, the following facts also became known: As far back as 1982, a serious accident took place at the first power unit of the Chernobyl AES, when a heat-generating channel with nuclear constituents burned down. During repairs, this channel was broken off and thrown into a pit specially made beneath the reactor. A so-called canyon remained around it. That is to say, at the center of the reactor, there is a defective sector that causes a nonuniform division of neutrons and may lead to their uncontrolled outburst. Exploitation of such a reactor must be categorically banned. However, it operates.

Let us recall that already, 5 years following the major 1986 catastrophe at the AES, there was a fire at the second unit. The scenario of the accident was repeated. The personnel's technical and professional incompetence did not make it possible to localize the fire, and the engine room was destroyed by fire. Fortunately, the reactor of the second unit was shut down. However, no conclusions were made from

this accident either. Recently, an international organization dealing with fire protection examined the state of affairs at the Chernobyl AES and concluded that its requirements are practically not fulfilled. There is not enough reliable equipment or materials for extinguishing fire. The electric cables are not sufficiently protected. Some pipes for the emergency water supply are out of order.

In order to eliminate the shortcomings, much capital is needed and the reactor needs to be stopped for a certain period of time. However, the energy produced by the Chernobyl AES is sold abroad. That is why the plant is not closed down. It must be recalled what experts are pointing out: The sarcophagus is beginning to break down and its roof has noticeable cracks.

According to the report by the Kurchatov Atomic Energy Institute, under extremely difficult conditions, over the period between 1986 and 1991, just between 23 and 33 tonnes of solid fuel could be found in various premises accommodating reactors of the fourth unit. This only accounts for between 11 and 15 percent of the reactor's total capacity. The quantity of fragments of fuel holders that have been found does not exceed several dozen out of 1659. Therefore, only an insignificant portion of fuel is presently under control. Some specialists assume that almost the entire active zone of the reactor was thrown into the central room and buried under sand, lead, boron carbide [karbid bora], and dolomite.

One year ago, a commission of Ukraine's State Committee for Atomic Supervision arrived at a conclusion that critical masses may well arise and chain reactions ensue. The sarcophagus has, in fact, been recognized as a facility presenting nuclear risk and, in addition to that, it is a constant reservoir of radioactive nuclides that enter the environment. It is not difficult to imagine the conditions of work of the personnel of the third unit, although these people arrive there for shift work lasting 2 weeks a month.

Since the Chernobyl AES is continuing to function, the Prypyat River and the Kiev Water Reservoir are becoming strongly contaminated with radioactivity.

I am sure that not a single country of the world would allow an atomic plant to operate after such a dreadful accident. However, we do allow it. Let us recall the situation that arose after the accident at similar RBMK units in Sosnovyy Bor [near St. Petersburg]. As is known, its cause was damage in one of the closed-control valves [zamkno-rehulyuyuchyy klap]. An examination of the situation at the Chernobyl AES has shown that many of such valves have one foot in the grave. Their guaranteed service life in the first unit of the Chernobyl AES expired as far back as in 1987. Instead of being replaced, they were left there for another 5 years. All that after the global catastrophe!

The valves of other units should also have been replaced. It is also possible to improve their design in order to rule out emergency situations. However, Ukraine does not manufacture valves. Russia is mainly satisfying its own needs.

Let us turn to the world practice. In the United States, 20 AES units, whose perfect operation lasted 13 years, have

been halted. Their continued operation was considered to be extremely dangerous and, therefore, economically destructive. In Bulgaria, 10 Soviet-made VVER units were halted after 8-11 years of service, because the probability of an accident in them that may have led to the disintegration of the nuclear core exceeded the permissible one by a factor of 55. Calculations indicate that even if the Chernobyl AES is halted in 1993, another accident may be expected between 1995 and 2000 at Ukraine's 12 VVER units. A question arises: For how long can the people's future be exposed to risk?

I am sure that those who advocate the continuation of the Chernobyl AES operation after 1993 act in an irresponsible manner. It is a clear thing that the complete impunity of those responsible for the Chernobyl catastrophe inspires today's apologists of this plant. Moreover, the atomic specialists regard themselves as heroes who are rescuing the state in the conditions of an energy crisis. In fact, they care, first and foremost, about themselves. This is indicated by the fact that they are no longer subordinated to the Ministry of Energy and by the fact that they conceal the income that receive from selling electric energy abroad.

A few more figures. One-third of the territory contaminated by Chernobyl is situated in Ukraine. During the seventh year after the catastrophe, virtually 80 percent of Ukraine's population absorb radioactive nuclides on a daily basis, at least with water. There still reside 2.5 million persons on the contaminated territories, and 500,000 among them are children. Isn't this a crime before the people and before Ukraine's future?

In 1979, there was an accident at the American "Three-Mile Island" plant and, owing to the availability of the protective cap, the consequences of it were much less serious than in Chernobyl. However, since that time not a single AES was built in the country! What did Americans do? They paid attention to nontraditional sources of energy and are today returning to the utilization of gas turbine technology and coal. Because, unlike at the Chernobyl AES, where the problem of burying radioactive waste remains unresolved, the problem of purifying discharged materials there has been resolved.

Today, Ukraine's Ministry of Energy and the Academy of Sciences believe that the excessive expenditure on the development of AES rules out the development of nontraditional energy sources and gas turbine electric power plants. Incidentally, Ukraine has a closed production cycle of gas turbine technology. Owing to this, it is possible to introduce up to 7 million kilowatt of electric and 22 million kilowatt of general—including thermal—capacities annually. This would make it possible, owing to the development of polyenergetic [polienerhetychni] gas-turbine electric power plants, to renew, by the year 2000, all the project capacities of Ukraine's power engineering. It would be possible to utilize between 90 and 94 percent of fuel in them. This would make it possible to reduce the spending of organic fuel by a factor of three.

Therefore, there exists an alternative. For this, it is only necessary to have the good will of people free from the amorality syndrome that culminated in Chernobyl.

Victor Hugo wrote this: "To remember means to foresee." Let us remember that Chernobyl's half-life period is still under way. We must reduce it only by raising our moral qualities and human will and dignity. In terms of actual deeds, this may be formulated in the following way. The parliament must not cancel the moratorium imposed upon the construction of AES or the decree on shutting down the Chernobyl AES in 1993. It is essential to adopt a decision banning the sale of the electric energy abroad to authorize actual elimination of the consequences of the accident at the Chernobyl AES. It is necessary to create a concern of gas turbine technologies with a serial output of polyenergetic gas-turbine electric power plants and utilize other sources of nontraditional power engineering.

Ukraine: Foreign Ministry Reports Importation of Toxic Wastes

LD1606034693 Moscow ITAR-TASS World Service in Russian 1751 GMT 15 Jun 93

[By UKRINFORM correspondent for TASS]

[Text] Kiev, 15 Jun—The ecological situation in Ukraine has become aggravated lately through toxic industrial waste being illegally brought into the country from Western Europe and the former USSR republics. It was stated today at a briefing at the Ukrainian Foreign Ministry that operations of this kind are being carried out unchecked by foreign companies with the help of their Ukrainian partners. Waste is being smuggled in disguised as humanitarian aid, raw materials, building materials, and chemical products. Instances of this have been reported in Transcarpathian, Zaporozhye, Ivov, Rovno, Cherkassy, Nikolayev, and Kiev Oblasts, as well as in the Crimea.

Having expressed their deep concern regarding this matter, the Ukrainian Foreign Ministry and the Ministry for Environment Protection have appealed on behalf of the Ukraine Government to the governments of other countries to take urgent measures to impose tighter controls over the disposal of poisonous and highly toxic wastes and to prevent them from being exported to Ukraine or crossing its territory.

Ukraine: Private Firms Contracting To Import German Chemical Waste

93WN0416A Kiev MOLOD UKRAYINY in Ukrainian 23 Apr 93 p 2

[Article by Bohdan Kushnir, correspondent: "Ukraine Will Be Turned Into a Foreign Dump: That Will Happen if Such Businessmen as Borysov and Yudovych From the "Podolia" MP Persist in Their Endeavor, and the Customs Borders Remain Transparent"]

[Text] [Boxed item: Volodymyr Doroshko from Kuznetsovsk in Rovno Oblast asks the following question: "Why are harmful materials being shipped onto our territory from Germany in order to satisfy the greed of some young businessmen who are merely seeking to derive some quick profits from this endeavor?"]

Two small-scale private enterprises in Rovno, which do not manufacture any competitive products, unexpectedly went out into the Western marketplace and concluded contracts

with some German firms. The contents of these contracts remained a commercial secret for quite some time; access to them was limited to a small circle of persons. Just why were foreign businessmen interested in the Rovno firms "Podolia" and "Alliance-West"—companies which are little-known even in this oblast?

Without encountering any obstacles or opposition at the truckload checkpoint, my guides and I turned into the warehouse and storage areas. What we saw were rusty drums, barrels, and various odds and ends stretching off into the distance.

"These are products from abroad which arrived here addressed to the private enterprise known as 'Podolia,'" I was told by one of our guides.

It was an impressive sight; you won't see anything like it even at a city dump. Flags of various colors were hung here and there. And it was not a good idea to approach too close to the dump itself. Furthermore, the oblast-level sanitation and epidemiology station has not yet reached a conclusion as to what kind of abundance was so unexpectedly sent to us from thousands of kilometers away in Germany.

If we are to believe the two preliminary items of information from M. Sharlay, the chief state sanitation and epidemiology physician for the Rovno region, a firm known as "Rimax" turned over photographic chemicals, synthetic varnishes, thin glass for lenses, acetone, and other substances which are certainly necessary for industry. This state physician gave the following assurance: The German items would not contaminate or pollute the environment, provided that the packaging is not used for transporting food products.

After looking over the dump, our guide remarked as follows:

"Several barrels are missing; somebody has already grabbed a few."

And that is not surprising: Although these odds and ends of trash were sealed, they have not been buried.

Nor were they any further German surprises when some staffers from the "K" Section of the SBU [not further identified] Administration for Rovno Oblast showed up at this dump. And they annoyingly insisted that Mr. Sharlay pay the closest possible attention to the incoming German loads of freight. The oblast-level Sanitation and Epidemiological Station glanced once more into the barrels and bottles. Some of them were empty, while paint, dye, or varnish could be seen on the bottoms of others. All the chemical substances had expired deadlines for their use. But glittering on the bottoms of three barrels were several kilograms each of mercury, most likely its waste products which had not been cleaned out. The Sanitation and Epidemiological Station assigned a danger rating of 2-4 to the chemical substances. But the metallic mercury—which had not been declared in any of the documents—was assigned a danger rating of 1. Most of the inspections of the freight loads at the ATP [auto transport enterprise] warehouses for the interurban hauls were inadequate and therefore useless.

Neither the customs office, nor the sanitation and epidemiological station, nor the procuracy, nor the staffers of Section "K" of the Rovno Special Services were able to explain the details of this unprecedented story, in which not only the directors of the "Podolia" MP [small-scale enterprise], but also the state institutions, had had a hand.

In the German city of Wittenberg Valeriy Krutko, an agent of the "Kamaztransservis" MP, arrived at the "Wimpex" firm in order to see G. [Siebrans] concerning items for the Rovno "Alliance-West" enterprise. He obtained a bill of lading and watched the loading operation. Everything that came to hand was being thrown into the trucks: tires, buckets, old refrigerators—all sorts of odds and ends for dumps. Valeriy K. was surprised to observe that bottles were loaded which were almost empty; sometimes painted barrels were loaded, and even paintbrushes were thrown into the trucks. Parked close alongside was an automobile from Kharkov bearing the license plate KHAKH 06-16. The driver's name was Vasyl. His task was to negotiate with the firm's officials and see to it that the "goods" for Ukraine were loaded. This firm was founded just recently. There are only six persons employed in it—two of which work on the sidings. There were no production areas: only a small warehouse 20 by 20 meters in size and three small rooms.

Here was such a small German firm—seen by an agent with his own eyes—and Ukrainian businessmen have started vying with each other to conclude contracts with it. Perhaps very soon now similar dumps for foreign waste products will begin to appear in other Ukrainian cities. Judging by the transport operations, these would be in Kiev, Kharkov, and Lvov. The latest transport haul under investigation was completed from Rovno. But it never arrived in Germany. The Poles—at the point where they take over from the Ukrainian customs officers—were not too lazy to look into the truck; and they turned the vehicle back toward Rovno, and the freight has disappeared without a trace. This matter is now under investigation by the Special Services. It could be that this foreign trash has found its way to the bottom of one of our small rivers. Such were the instructions received by the agents in the event of something unforeseen occurring.

While Section "K" of the SBU Administration for Rovno Oblast and their colleagues from Kiev are unraveling the foreign knots, we will ask certain other questions. Why is our young state allowing the proprietors of the "Podolia"—Yu. Borysov and M. Yudovych—and their supporters in state posts to arbitrarily transform our territories into foreign dumps? And those persons who should be stopping such dangerous freight loads right at the Ukrainian border helplessly shrug their shoulders or refer to incomplete legislation on the matters involved. This is not just a matter of one or two loads—250 tonnes of German trash were hauled into our country, and fantastic sums are being paid for its utilization abroad. Of these 250 tons, some 230 tons were brought in by "Podolia" and "Alliance-West," which provided for cooperation with the German firms regarding products immediately rejected by them. We are not going to probe into the matter of how many bribes and to whom they were promised at this juncture; perhaps the investigation

will bring such facts to light. When the investigation began, these businessmen suggested that certain persons had closed their eyes to this matter by saying that the trash would be dispatched to Georgia. Is it possible that certain "wise guys" would be found there who would be willing to sell out their own country for hard currency?

All the contracts with the German firms "Rimex" (Wolfsohn), "Hannover Siebrans" (Wittenberg), and "Wimpex" G. Siebrans are based on the desire to maximize profits at any cost. Mr. Borysov was not even frightened by such a point as the following in the contract: The parties to this reciprocal agreement shall renounce all claims and any sorts of fines against each other. And why so? The answer to that puzzling question is simple. Almost all the extra profits have gone to the account of the "Podolia" MP. Rubbish is rubbish, but among the waste products there are also some necessary things—items which can easily be sold under the conditions of our currently almost empty stores.

Let's consider Paragraph 5 of the contract between "Podolia" and "Rimex":

"The 'Rimex' firm shall receive 25 percent of the profits from the sale of its items. A like amount shall be received by 'Podolia'."

But another 50 percent is also slated to remain with "Podolia" as a reserve fund for creating a joint venture. Borysov and Co. has received 75 percent of the profits. But "Rimex" is renouncing even its own 25 percent and is requesting that it be transferred to the account of its small-scale enterprise entitled "Partner" in Kiev.

The German partners have been dispatching the "goods," paying all the expenses, and not receiving a single mark. Could we inquire as to why it is convenient for them to do business in this way?

In Germany, particularly in the Eastern regions—where Soviet troops used to be stationed in various places—a great many by-products have been accumulated; they need to be used, and billions of marks are being spent for them. Zealous businessmen, knowing the rather wild and primitive laws of Ukrainian entrepreneurship, have hurled themselves into making greedy and considerable profits. At first—as in the case of fishing—they set out a great deal of bait. In fact, the first few batches of barrels, partially filled with paint, could be used profitably. Later they released the spoiled worms—the harmful chemical substances and contraband mercury. With our present-day chaotic conditions with regard to freight handling, these items could end up in dumps or in rivers.

The Ukrainian borders have proven to be transparent with regard to German rubbish. The customs officers were too lazy to look into the almost empty barrels and did not bother to verify the certificates on their products (There were none). The investigation could reveal the price paid for this laziness on the part of the Ukrainian customs officials. Nor did the Rovno Regional Customs Office—headed up by V. Raykovych—properly perform its task with regard to these "strange items": They too permitted the rubbish to pass through their checkpoints. Thus, even an atomic bomb

could be concealed in Ukraine, because our borders are—in effect—transparent. And, at first, the oblast-level State Sanitation and Epidemiological Station gave the OK for selling the foreign trash.

Hryhoriy Shokalo, the Rovno inter-rayon procurator for environmental protection, kept asking us whether or not we intended to call him a lawyer for the private firm "Podolia." The procuracy is philosophically dissatisfied with the incompleteness of the legislation in this field. The procurator did not know which article had been criminally violated: 230 or 0. There have not yet been any similar precedents in Ukraine, and without them our legal machinery cannot operate. And the procurator thought for a long time about what to do with that damned rubbish so as not to cause an international scandal. Hryhoriy Mykhaylovych praised the German zinc-clad, i.e., galvanized, barrels. Although old, we do not make anything like them; and beggars cannot be choosers. The procurator empathized with the businessmen: The lads did a good thing; they sold some old refrigerators and paints, but now the matter has ended up in trouble; it's a lot of fuss about nothing. And the trash still has to be picked through.

When you listen to this procurator for environmental protection, you get the following impression: Perhaps it would be a worthwhile to import more foreign junk into Ukraine because something useful might be found in its midst. And everything about it is legal. There is a contract. It's all the fault of that damned mercury, which was found in three barrels, and which has compelled Procurator Shokalo to institute a criminal case in accordance with Article 70 (Contraband) of the Ukrainian Criminal Code.

The higher authorities in the Rovno State Administration have obviously not seen the German goods. Viktor Kovalenko, the president's deputy representative, was empathetic to the "Podolia" business in general terms. He had a talk with the procurator and does not see any reason to put a stop to the activity engaged in by Borysov and Yudovych. Let them continue to bring in the German trash, thereby taking advantage of the lapses in our legislation. The administration will await the results of the investigation and then have its own say in the matter; this information will be handed over to the newspapers.

The businessmen themselves, as they themselves explained in the procuracy, blame everything on the Germans, saying that they did not expect them to be such pigs. This is a convenient stance to take. Can it really be that they—having signed the contract—did not know what would happen? They knew, but they sacrificed not only their own reputation, but the health of millions of people.

M. Sharlay, the chief sanitation physician, and M. Bezkorovaynyy, the chief of the Environmental Protection Administration have passed a decree prohibiting the sale of chemical substances, and they have proposed that the German trash be returned to the "Rimex" firm. To be sure, they took one step backward when they wrote that if it should prove impossible to return these "gifts" to the Germans, they knew a method for rendering them harmless.

Can it be that the Borysovs and Yudovyches will really transform Ukraine into a European dump?

Ukraine: Program Seeks to Improve Quality of Drinking Water

93WN0436 Kiev GOLOS UKRAINY in Russian
14 May 93 p 5

[Interview with Vladislav Goncharuk, Ukrainian AN Institute of Colloidal Chemistry and Water Chemistry im. A. Dumanskiy, director, Ukrainian AN corresponding member and head of the scientific-social "Drinking Water" and technical-scientific "Clean Water" programs, by Yuriy Velikodnyi under "Ecology" rubric: "Where Can We Slake Our Thirst?"]

[Text] Among CIS countries, we yield only to Turkmenistan, with its Kara-Kum, in fresh water reserves per person. And in concentration of industry, we have no equals.

Our correspondent met with a scientist whose research and public activities in the area of water chemistry and engineering were deservedly valued by the British Cambridge Biographic Center last year—he was named man of the year, and entered into the prestigious international "Who's Who" guide. We are talking about the director of the Ukrainian AN Institute of Colloidal Chemistry and Water Chemistry im. A. Dumanskiy, Ukrainian AN corresponding member, Vladislav Goncharuk, head of the scientific-social "Drinking Water" and technical-scientific "Clean Water" programs.

Velikodnyi: Vladislav Vladimirovich, the quality of our drinking water concerns everyone. So what are we drinking?

Goncharuk: In general, the quality of consumption is determined by the opportunity to choose. Semolina at Mirgorodskaya or borscht at Svalyayev seem like something exotic. Besides, regular consumption of medicinal mineral water without a physician's indication is harmful to one's health. Romantics will choose the spring. However, uncontrolled springs have the danger of chemical and microbial poisoning. Unfortunately, the situation with wells is no better. For this reason, we are forced to drink water from the water main. It isn't nearly as good, and doubts torment the soul. But the Ministry of Health guarantees...

Water quality indicators are determined by the State Committee on Standards [Gosstandart], and they must be steadily observed. But only 12 toxicological indicators and a few others are determined by the standard. We might have agreed with it many years ago, but not now. In our institute, with the aid of an extra-sensitive apparatus, over 500 organic combinations have been identified in the water from Kiev's water main, including some that are toxicological. And how many combinations have not yet been discovered in our drinking water? For this reason chemists, medics and manufacturers are fighting for a revision of the "Drinking Water" standard. We also propose the adoption of a law that would guarantee people safe water. And what kind of effect does the combined action of micro-additives in the drinking water and the chemical and radionuclide factors that enter the organism from the air and with

produce have on our health? It is no accident that scientists relate 60 percent of the world's diseases to the quality of drinking water.

Consequently, while agreeing that the use of water from the water main is safest, all the same, I want to caution that for children, people with weak health and anyone who is not indifferent to the quality of his own life, an alternative choice should exist. But Ukraine is so poor in fresh water that 800 settled points are experiencing an acute shortage of drinking water, that every day, in accordance with a mandatory temporary allowance, 2.7 million cubic meters of water are being allotted to the population in deviation from the standard.

Velikodnyi: And what it is like "there?" Do they drink the tap water there?

Goncharuk: If you recall the reports from the Olympics, in Barcelona, it is forbidden to use water from the water main. At Paris' water main station, which is model in many aspects, they are coming up with water of a fairly high quality. But Parisians,—from rich people to students—prefer packaged water from pure mountain rivers. And in general, all over the world, the opportunity to choose one's water consumption is one of the main indications of prosperity.

Velikodnyi: So it seems that we are at a dead end?

Goncharuk: Not at all. Ukrainian science raised the alarm in time. Due to the residual principle of financing, problems with utilities remained outside the attention of the scientific community and the broad masses for decades. However, all of us, as before God, have turned out to be equal before drinking water. For this reason, in 1991 the Academy of Sciences, together with the Ukrainian State Committee on Residential Utilities [Goszhilkommunkhoz] and with the support of the Ministry of Health and the Ministry of the Environment, developed a concept for improving the quality of drinking water, on the basis of which the republic scientific-social program "Drinking Water" was created in 1991.

Velikodnyi: Our people have already suffered through so many problems. Where do the strengths of this program lie?

Goncharuk: I think that they lie in the fact that it was created by competent specialists on their own initiative, for whom solving this problem is a matter of honor, the meaning of life, excuse my pathos.

The conceptual basis for the solution of the problem is the physiological norm for a person's daily water consumption. This is about three liters. In Ukraine, there is enough reliably protected high-quality artesian drinking water to assure that norm if we take a thrifty attitude towards it. It is true that there are territories where there is none, but where there is sufficient water with certain deviations from the standard. Analysis shows the expediency of purifying underground waters of this sort, but only on the condition that they be used exclusively for drinking and food preparation for people and domestic animals.

The realization of this seemingly simple idea requires the resolution of complicated material and technical problems, and time. And here, in order to create the opportunity for an alternative water system for people, the concept proposes the immediate development and introduction of consumer and collective water supply purifiers that would fit the particulars of the various regions.

But the most complicated problem is the development and introduction of new water processing technologies, and the intensification of those already in existence. And of course, we must develop and introduce methods for identifying the polluters that substantially affect water quality.

Taking into consideration these goals, we have put together an integrated program of scientific research and experimental design, with strict attention paid to specific facilities for introduction. Already, recommendations are being developed for all the regions of Ukraine concerning the rational utilization of artesian springs both for drinking and economic needs. New technologies and installations for the purification and conditioning of artesian waters, including technologies that would render them harmless and for conservation, are being developed and put into production. Various highly effective water supply purifiers are coming onto the market that are built for local conditions, that have undergone the most careful testing and comply with the most modern requirements. Regional Vodokanal administrations will receive basic data on the reconstruction of water main stations. Operators will receive simple and reliable instructions for determining the necessary indicators of drinking water quality.

Velikodnyi: However, will you be able to handle the enormous volume of work and quality control?

Goncharuk: When the "Drinking Water" program was adopted, to our natural joy was added an enormous weight of responsibility. The Ukrainian AN Institute of Colloidal Chemistry and Water Chemistry was confirmed as the chief organization for the program's execution. And here, I understood that under the existing system of separate financing and accounting for the several tens of research projects that made up the program, the role of the chief organization and the research leader would boil down to the role of "wedding general."

We began the search for a way to organize the job rationally. Colleagues from the Ukrainian AN Institute of Economics helped us to develop a system of general contracting for the program's execution, as is done by the U.S. government, allotting state budgetary funds. Under the aegis of the institute, we created the "Clean Water" enterprise, for research and assimilation into production, and with the customer's approval, we passed on his obligations and rights to the program's general contractor. Both I and my colleagues experienced great inspiration on becoming the real masters of the work to which we had dedicated our lives. And now, we watch happily as our program, like a fruit-bearing tree, gains strength and blooms.

Velikodnyi: Two years for you, the executors, is probably not a very long time, but for us, the water consumers, we are impatient to hear: what are the results so far?

Goncharuk: In Kiev, people are already accustomed to points being opened somewhere in the city for the distribution of artesian water into the consumer's container. Today, there are lines. Unfortunately, due to technical difficulties, the Kievvodokanal administration is in no hurry to broaden the network of points like this. However, they should be created wherever there is an opportunity.

I would like to warn that among the various consumer filters, far from all of them are effective water purifiers. The only thing the Ministry of Health guarantees is that they are not sources of water pollution. I can guarantee that the plans for the "Drinking Water" program combine within themselves highly effective water purification for chemical and microbiological contaminants with extended operating capability.

We need small- and mid-level production water desalinization installations. A base installation of this sort has already been created at our institute. It underwent testing in the Kherson water main, and received a positive evaluation. An experimental installation for cleansing excess iron and manganese from the water has been designed for testing in the water main of the city of Beregovo. Consumer and collective purifiers are being prepared for operation based on the use of new sorbents and physio-chemical methods. More than twenty methods for determining the harmful organic and inorganic additives in water on a level significantly less than the maximum acceptable concentration have been developed. New technologies have been developed and an industrial base has been created for high-tonnage emissions of effective carbon sorbents and ionites that will meet Ukraine's demand for its own sorbitizing materials which would be competitive with foreign equivalents. The development and preparation by the institute of low- and mid-production ozonizing equipment makes it possible to avoid the use of chlorine. I could continue the list.

Velikodnyi: This means that we will have clean drinking water?

Goncharuk: Without clean drinking water, life itself is impossible. And we will fight for it desperately.

Moldova: Impact of Pollutants on Water Quality Surveyed

934K1210A Chisinau NEZAVISIMAYA MOLDOVA
in Russian 28 Apr 93 p 3

[Article by Yelena Tsorina, under the "Ecology" rubric: "How Soon Will the Children of Moldova Start Going Bald?"]

[Text] *Everyone probably remembers how, several years ago, all were stunned by the tragedy of the people of Chernovtsy. The news that acute functional derangement had been observed and that children were losing their hair in a region adjacent to ours evoked alarm for some time. Everyone was gradually reassured, however, when they were left with their hair.*

Many years have flowed past since then, in the literal sense of the word as well—the city was subjected to careful water cleaning, and every house, every square, and every street was

washed down. The runoff from that naturally went into the Prut, which posed no hazard to the residents of Chernovtsy; water comes to them from the Dniester.

The uncommonly rainy spring forces us to take a look at that recent history. What could be washed off and carried into the Prut, the Dniester, and country water wells by the rainfall, which is already being poorly absorbed by the oversaturated soil? How soon will the children of Moldova start going bald?

The State Department of the Republic for Standards, at the request of the editors, courteously provided a number of documents on the quality of the drinking water that were prepared by the staffers of Gosnadzor [State Oversight Committee] and the sanitary and epidemiological services with the participation of the housing and municipal services administrations.

Analysis of the results of verifications and research performed by the Institute of Hygiene and Epidemiology testifies that the quality of drinking water has dropped sharply over the last 40 years. Whereas in 1954-1965 nitrate contamination of the groundwater was recorded only in the Budzhak steppe, and the maximum concentration of nitrates did not exceed 155—the norm is 45—milligrams/liter, when water from 1,450 wells in northern, central, and southern Moldova was tested, nitrate contamination was noted across the entire territory and sometimes reached the underground waters of the Dniester region and the lower reaches of the Reut River, as well as being up to 3,000 mg/l in certain sections of the Prut region, as early as 1969.

Hydrochemical mapping in 1981 established ubiquitous concentrations of nitrogen compounds in groundwaters, and elevated concentrations of them were observed on 70 percent of the territory. "Stores" of nitrates which, gradually migrating to depth, are contaminating interstratal waters and artesian wells were detected at various depths.

Towns were recorded that were virtually devoid of good-quality water.

The results of tests of drinking water quality in cities and rayon centers of the republic are no less alarming. The Rybnitsa and Synzherya, city water significantly exceeded the standards for hardness (content of salts) and strontium in 1990. The Leovo water did so for ammonia, the Kalarash and Nisporeny did so for fluorine, and the Vulkaneshty and Chadyr-Lunga did so for iron content. A host of nitrates was discovered in the city water of Grigoriopol and Kamenka; the Teleneshty water did not conform to the GOST [All-Union State Standard] in terms of coloration, the Kakhul and Leovo in terms of turbidity, and so on.

Checks of city water quality made in 23 cities and settlements of the republic in 1991 gave 18 negative results. The fluorine content in Nisporeny was 6—7.5 mg/l (with an allowable concentration of 1.2). The hydrogen sulfide content was 20—30 times higher than the norms. The quantity of fluorine in the water of Beltsy and Feleshty was more than three times higher than allowed. A 10- to 12-fold excess of hydrogen content was observed in Kalarash. Ammonia

content above and beyond the standard was recorded in Nisporeny, Kakhul, Feleshty, Synzhereya, Ryshkany, Teleneshty, and Chimishliya.

Numbers, numbers, numbers... Analogous data was cited in the summary materials of Minzdrav [the Ministry of Health], the Academy of Sciences, the Moldavgeologiya Production Association, the former Ministry of Water Management, the local branch of the Ukrainian NII [Scientific-Research Institute] for Hydroengineering and Land Reclamation, and documents from ecological expeditions along the Dniester and Prut. But even though they have been published repeatedly, it looks as if most people are not taking them seriously. Only strontium, perhaps, evokes some anxiety. The reasoning to justify it is not clever—fluorine, as is well known, is contained in popular toothpaste, hydrogen-sulfide baths are restorative, and nitrates, as some optimists say, are entirely the gift of fate: They make up for the shortage of proteins in the daily diet, with meats and fish so expensive.

The results of work by staffers at the NII for Sanitation and Hygiene testify that this is, to put it mildly, not quite so. In the extensive essay, "The Use of Agricultural Chemicals, the Ecological Situation, and Human Health," they note the high level of contamination of the drinking water as a result of the disproportionate burdens placed on the soil compared to its self-cleansing abilities by pesticides and mineral fertilizers, as well as the wastes of the large livestock-breeding complexes that are difficult to recover.

Research that they conducted encompassing the population of major towns in five regions in the north, center, and south of the republic showed that the state of peoples' health is directly dependent on the intensive use of chemicals in agricultural production. The deviations were the most pronounced in places where high levels of pesticides application, with intensive nitrates contamination of sources of the drinking water supply, were noted. Children, especially those in the age group from one to seven years of age, were the most sensitive to the effects of chemical contamination. Up to 30 percent of the young children lag markedly in biological development behind their contemporaries. Blood analyses confirm that their immunity is appreciably lowered. The percentage of birth defects is increasing sharply in those hazardous zones. The immune status of the body is disrupted among adults as well.

Prolonged exposure to nitrates, in the opinion of scientists, also causes a pathological state that is classed among the diseases of the endocrine system, derangements of nourishment, and disruptions of metabolism. They feel that the root of the pathogenesis evidently lies in the ability of nitrates to suppress the activity of enzymes that take part in tissue respiration, thereby reducing the rate of metabolism. The bone system becomes brittle and the teeth are destroyed as a result of a surplus of fluorine.

The essay also noted that the intensive rate of contamination of the environment with nitrates and fluorine causes the joint entry of those compounds into the human body. An experiment established that the permeability of cellular

membranes is sharply altered under the effects of a combination of fluoride and sodium nitrate in liver and kidney tissue....

But we will return to the State Department of Moldova for Standards. What, in the opinion of its associates, is the reason for properly protecting the sources of drinking water against contamination?

"First and foremost, the source of water supply was not chosen correctly in a number of populated areas," feels State Department of Moldova for Standards Quality Department manager Olga Plemedyale. "The considerable deviations in the quality of drinking water associated with that are of an objective nature, and require real expenditures in order to improve the state of affairs. The shame is the irresponsibility of those who are to blame for the fact that the technology for water treatment is being violated in rudimentary fashion even where the necessary equipment and reactors are available.

"I have before me a standard document from an inspection that asserts instances that are in no way connected with the chemical composition of the water: its disinfection—at the very least!—is not being performed in Gloden, Teleneshty, Ryshkany, Floreshty, Shtefan-Voda, Feleshty, Synzhereya, Kakhul, Komrat, Nisporeny, and Leovo, as a result of which the number of bacteria of the *Bacillus coli* group is dozens of times higher than the allowable limits. Values above the norms for turbidity, coloration, and smell have been recorded in the drinking water in another seven rayon centers."

[Tsorina] But all the same, turbidity, you will agree, is not as terrible as, say, strontium....

[Plemedyale] But relatively few concepts evoke no doubts. Well then, let us talk about muddy drinking water. The GOST permits up to one and a half milligrams of suspended matter in a cubic decimeter. That is at ordinary times; in the spring thaws, up to two is permitted. The executives of the Chisinau Rezhnya Akva-Kanal association, by way of example, have today asked our state department to permit them to feed water to the city with 3 milligrams of suspended matter. The department naturally refused the request. The fact is that the use of such water is contraindicated, first and foremost in health care—all of the distillers would be disabled, and it would become impossible to mix solutions for medicines at hospitals and drug stores. Turbidity is moreover not just suspended matter. It is also conditioned by pathogenic microbes and viruses, and the quantity of organic matter could increase in such water; it interacts with chlorides and will increase the quantity of carcinogens. How can such water be fed in to prepare food at nursery schools and schools if it is not suitable for an adult in the population?

[Tsorina] But strontium—why is its content permitted by the GOST, and why are there no parameters for radioactivity in it?

[Plemedyale] The GOST for drinking water that is in force today was established in 1982—the sole one for the whole

territory of the former USSR. It has naturally become outdated, and its allowable parameters largely differ from European ones.

CAUCASUS/CENTRAL ASIA

Kazakhstan: Procedure To Register Atomic Test Victims Confirmed

*LD0106154693 Moscow Mayak Radio Network
in Russian 1300 GMT 1 Jun 93*

[Text] The Cabinet of Ministers of Kazakhstan has endorsed the procedure for registering for financial compensation those citizens who suffered as a result of atomic tests. It has been particularly stipulated that those who formerly resided in the area of the Semipalatinsk nuclear test site and left Kazakhstan should register in accordance with interstate agreements.

Kazakhstan: Ecology Minister on Possible Impact of Chevron Deal

*934D0074A Moscow NEZAVISIMAYA GAZETA
in Russian 26 May 93 p 6*

[Interview with Svyatoslav Medvedev, minister of ecology and bioresources of Kazakhstan, by Sergey Kozlov; date and place not given: "Almost Everything Is Clear When It Comes to Test Ranges, Which Cannot Be Said About Chevron"]

[Text]

Ecology

Kozlov: The opinion of ecologists, in fact, was not taken into account when the Government of Kazakhstan concluded the contract with the American oil corporation Chevron. How do you explain this?

Medvedev: Actually, we have not been able to acquire the documents for 6 months already. They are giving us neither the draft itself nor its description. The situation is rather serious. After all, Chevron is planning to conduct studies in the shelf area of the "closed" Caspian Sea, and this corporation has no work experience under such conditions. But this shelf is the spawning ground for the Caspian sturgeon. All it will take here is a spill of 100,000 tonnes of oil, and all life will be ended, and all of the filth will accumulate in the Caspian. It would also be possible to explain the situation this way: Chevron came—a powerful corporation with a world name—and everyone knows that it will accomplish the work both in the ecological and the technical sense on a level that is two orders of magnitude higher and better than any of our oil wells. And many are saying: But what else is needed, we never had anything like this either.

Kozlov: Many have forgotten now that Chevron already tried to cheat Kazakhstan in autumn of 1991, when the conclusion of a really extortionate contract was prevented literally at the last minute. And they still trust it. What is this, a craving to receive at least something, and as soon as possible?

Medvedev: The point, I think, is not even whether I trust Chevron or not. The idea of the ecological expert examination of the project, which we are obligated to implement, is that the specialists must be absolutely accurately convinced, for example, that 99.6 percent of the hydrogen sulfide, and not 99.4 percent, is removed—for this gas, such a value verges on nonsense. There are such ecological subtleties here which, because of political emotions, can even be overlooked. But it is written in the agreement that they will do everything in accordance with international norms.... This is for the kindergarten; to a specialist these assurances say absolutely nothing. Moreover, Chevron knows very well: Kazakhstan has neither the money nor adequate scientific forces and technical resources for a sound ecological examination. But here, it seems to me, they are covering themselves a little. We will conduct the expert examination, and we will make them work as if they were back home. This is my main task. We will begin to conduct an expert examination of all types of work on the Tengiz with our own forces already today.

Kozlov: But how much will they trust you—after all, it can be said that you are an "interested" party. But if you are talking about foreign experts, this, again, costs money. It is unlikely that a government that has already signed an agreement will give them to you in order to subject this document to at least some kind of doubt.

Medvedev: Even if they do not allocate adequate resources, I think the money will be found. I think that international capital will follow Chevron to Kazakhstan for sure. For example, when I conducted negotiations with the International Bank for Reconstruction and Development in Washington, many important businessmen and financiers expressed a desire to invest money and expertise in order to acquire information on what is occurring there. Because this project is unique from the standpoint of the complexity of the ecological situation. As for trust, we are already conducting negotiations with a very prestigious firm from Buffalo. This is the firm—Ecology and the Environment—which Chevron, incidentally, fears as the devil fears incense. But this firm is already examining Chevron, and we already have some results and findings. So I think that we will manage. In any case, our specialists now have clear ideas about how it is necessary to operate. At first, we will compel Chevron to establish an ecological monitoring station. At present, no one is able to say how the project will turn out for Kazakhstan, and, indeed, for the whole world.

Kozlov: This story shows that, with respect to secrecy on ecological questions, everything is still "in order" in our country. But what is the situation with other problems, for example, the declassification of military test ranges?

Medvedev: The test ranges in our country covered about 20 million hectares of the 270 million hectares of land in Kazakhstan. This includes the Semipalatinsk test range—1.8 million hectares. We are now working directly with the Ministry of Defense and have already visited all of these facilities. I think that declassification has already occurred at a level that is necessary. In any case, the population knows practically everything about what and how things are being done there. Perhaps some kinds of scientific data are

not known yet, but they are now in Russian safes—in Moscow, Arzamas, and Chelyabinsk. For example, we are ascertaining all data associated with the activity of the Azgir base—this is in Atyrausk Oblast, where more than nine nuclear explosions were conducted in salt domes. Therefore, it can be said about the test ranges: Everything is more or less normal, although declassification will take perhaps another 3 to 5 years.

Kozlov: How many test ranges were there in Kazakhstan, all told, including those that were associated with nuclear tests?

Medvedev: We had about 20 large and small test ranges. Semipalatinsk was always a nuclear test range. But 38 nuclear charges were also exploded on the territory of Kazakhstan during the time when 470 nuclear explosions were conducted on the Semipalatinsk test range. The rest are the aforementioned Azgir and sites in Uralsk, Kzyl-Orda, Chimkent Oblasts, and even in Kustanay Oblast. This year, for the first time, we received an allocation of 580 million rubles [R] from the government to conduct a radiological inspection of the territory of Kazakhstan. It is necessary for us to conduct medical-biological examinations at the Semipalatinsk test range, to ascertain the effect of tests on the health of the people. Here, it is necessary for us once again to involve foreign scientists—Japanese and American—to verify their data. We are working on this now. After all, everything is being said and written about this test range, and much that is doubtful. There are people who are trying to give this subject an acute political character.

Kozlov: The ecological movement of Kazakhstan, which was formed back in 1988, in fact let itself be heard two years later, giving a powerful voice against nuclear testing. But this voice can no longer be heard. Are there no problems?

Medvedev: But of course, there are numerous problems with nature in Kazakhstan. We, for example, as a state organization, must resolve them accordingly; that is, in conformity with state resources. But many of our "greens," because of their ignorance, simply do not understand this. After all, they did not do even a hundredth of what we are doing. We, unquestionably, must listen to their opinions and recommendations, but this does not mean that we will accept decisions as they dictate. They can conduct an expert ecological examination of any project, but the findings should be made first and foremost by our professional monitors and experts. The most powerful ecological movement, Nevada-Semey, is losing its influence, because the main object of its activity has been closed down—the Semipalatinsk test range. But as for the test ranges in other countries, for example, in the state of Nevada, our antinuclear activists were met by local residents with protest demonstrations, and they were simply forced to depart without anything. Because there a notification is given on every explosion, and the local population is given substantial compensation, so that people there say simply: We do not want tests to be concealed. As for the Chinese Lopnor test range, which is 800 kilometers from Almaty, no one is permitted to enter it. The situation is the same with another once very influential Aral-Asia green movement. It also in its time did its work—attracted attention to the Aral—and it now somehow works for itself. As for other groups—the

Green Front and the Sorbulak Fund, here there is more noise than anything realistic, and in places there is simply undisguised careerism in the area of ecological problems.

Kazakhstan: Medical-Environmental Atlas Published

93WN0437B Almaty AZIYA INTERNATIONAL WEEKLY in Russian No 16, Apr 93 p 4

[Interview with M. Ishamkulov, head of Department of Industrial Soil Pollution of the Institute of Soil Science of the Academy of Sciences of the Republic of Kazakhstan, by Z. Korneyeva; place and date not given: "Medical-Environmental Atlas of Kazakhstan. Unique Phenomenon"]

[Text] An analysis was made of the incidence of eye diseases among children in Akmopinsk and Kochetav oblasts. Every fifth child there suffers with myopia. It was revealed that this is associated with underground water rich in radon. Excessive radon is affecting the children's eyesight.

My interlocutor, Marat Shaydulovich Ishamkulov, is a doctor of geographical sciences, head of the Department of Industrial Soil Pollution of the Institute of Soil Science of the Academy of Sciences of the Republic of Kazakhstan. In the beginning of April Marat Shaydulovich introduced the "Medical-Environmental Atlas of the Republic of Kazakhstan" at the Ministry of Ecology and Biological Resources. "A unique event and a titanic work," is how it was described by Minister Svyatoslav Aleksandrovich Medvedev. The atlas contains tens of maps from which, for instance, it is possible to find out about the link between certain diseases and the climate or industrial pollution.

Korneyeva: Marat Shaydulovich, what sections does the atlas contain and who participated in its compilation?

Ishamkulov: The atlas contains such sections as "Population" (demographic and labor resources) "The human habitat" (pollution of the environment—the longest chapter in this section). "Food," "Nosogeography" (maps of the most prevalent epidemic diseases), "Analysis of Medical-Ecological Consequences of Anthropogenic Influences," "Improvement of the Habitat," "Organization and Planning of Public Health." The Institute of Soil Science of the Academy of Sciences of Kazakhstan, the Ministry of Geology and Protection of Mineral Wealth, Ministry of Ecology and Biological Resources, the Main Administration of Hydrometeorology and Control of the Natural Environment, the Ministry of Public Health as well as others took part in the preparation of the atlas. The atlas has two editors: Mikhail Yefimovich Zeltser, doctor of medical sciences with the Institute for Postgraduate Training of Doctors, and myself.

Korneyeva: You cited eye diseases among children linked with the presence of radon in water as an example. There are probably quite a few cases of that?

Ishamkulov: Retinoblastoma is a congenital malignant tumor in children. Cancer of the eyes. It turned out that retinoblastoma can also be an acquired disease. One of the principal sources of this disease is found in a plain in the

foothills of Zailiyskiy Altai, that is a region extending from Chemolgan to Issyk in the west and east, in the south—from area where the mountains begin, and in the north—from the Kapchagaysk water reservoir. Almaty also forms a part of that zone. Incidences of that disease are particularly frequent in those sectors where ground water surfaces and processes involving formation of swamps are taking place, with moisture-loving plants, in areas where so-called meadow soil forms. In accordance with research conducted by the Institute of Soil Science soil and plants in this territory are polluted with an excess of fluorine. There is much iodine present there but iodine in all of the environments is in a bound state.

By the way, Almaty and the entire territory of Northern Tien Shan, in the foothill regions, is a zone of iodine deficiency. Basedow's disease occurs here as well as endemic goiter. This has been known since the last century. Not only the foothills of Zailiysk Altai but also Dzhungarsk Alatau, and the Sarkand Rayon are known as endemically unfavorable. Individual settlements, where the Uigur population lives, it appears, are stricken more frequently apparently by virtue of the peculiarities of the Uigur diet. Their diet includes a lot of vegetables, but iodine in the soil is in a bound form and is not accessible to plants. There is also an insufficiency of iodine in water. This is indicated in our atlas in the form of maps of endemic goiter disease. There are also other very poor areas in the republic. In particular, in West Kazakhstan there is a shortage of selenium both in soil and water, as well as in plants.

Korneyeva: What diseases are the most prevalent in Kazakhstan?

Ishamkulov: There are many of them. Among cardiovascular diseases—the ischemic disease of the heart, among oncologic diseases—cancer of the esophagus, and glaucoma among the eye diseases. Blood diseases are also quite common.

Korneyeva: Marat Shaydulovich, your atlas contains a section "Improvement of the Habitat." That means with the aid of the map it is possible to predict the distribution of a certain disease and issue recommendations for improvement of health conditions?

Ishamkulov: Yes. But inasmuch as we were unable to cover all of the aspects of habitat improvement we did it selectively using individual diseases as an example. Endemic goiter, for instance, is affected by iodine deficiency thus maps were created showing correction of iodine content in various elements of the natural environment with the addition of iodine to salt, to food products, wherever that is necessary.

Korneyeva: Who is interested in your elaborations?

Ishamkulov: An entire series of ministries and higher educational establishments for the training of students. For purposes of international exchange, particularly in border regions. How, for example, does a certain disease move to neighboring states, to China, or Iran.

Korneyeva: The minister called your atlas unique. Has such work been done in other close or distant foreign countries?

Ishamkulov: Such atlases have not been created in any country. In Moldova, for instance a doctoral dissertation was defended on medical-geographical maps of Moldova by Feldman. But no atlas was created. There was an atlas on the organization and planning of public health in Armenia. But the territory of Armenia cannot be compared with that of Kazakhstan. Their atlas contains maps for the planning of public health in Armenia, showing the network of pharmacies, accessibility of medical services, number of beds for various diseases. Medical-geographical atlases were created in Russia for Karelia, but they are not as good as our atlas because for the most part they contained a collection of statistical data: incidence of various diseases in the different rayons. We, however, show not only the number of those suffering diseases, but also why they are sick—as a result of natural causes or due to industrial pollution. In France, for instance, there is the Institute "Maps of the Flora of France," which has been in operation for 20 years. They are yet to complete the mapping of the flora in that country. In Uzbekistan there were also plans to create a medical-geographical atlas but on the basis of a much narrower program. They did not include data either on nutrition nor on improvement of the habitat or on pollution, but merely the principal diseases. That work has not been completed.

Korneyeva: And your atlas?

Ishamkulov: We need a good map printing plant for the publication of our maps. Unfortunately there is no such enterprise in Kazakhstan. Those maps which we submitted at the presentation were printed by a very small map printing enterprise belonging to the Ministry of Agriculture. In general that is a major problem. The preparation of such an atlas costs a lot of money which we do not have today. I was once invited to meet with representatives of the Tashkent Map Printing Plant. They came here and we were planning to order the production of maps for our atlas with them. For 20 pages they asked one-and-a-half million rubles. That was the year before last. We have about 138 such pages and at present all this will cost much more. We are seeking sponsors and can promise that our work, in addition to everything else, may yield a substantial profit.

Armenia: Nuclear Power Station Thought Impervious to Attack

MK1805111693 Moscow NEZAVISIMAYA GAZETA in Russian 18 May 93 p 3

[Armen Khanbabayan report: "Armenian Nuclear Electric Power Station Will Not Be Taken Easily, Specialists Say"]

[Text] After the Armenian parliament evaded responsibility for the possible restart of the Armenian nuclear electric power plant, which was halted after the 1988 earthquake, and the government was bold enough to pass a decree on reviving the electric power giant, the republic's environmental situation is once again giving cause for concern. It turned out, however, that the average citizen, exhausted by the hardships of the last winter spent without heat and

electricity, reacts indifferently to the prospect of a possible environmental apocalypse. In addition, increased quantities of water released from Lake Sevan have affected the natural balance extremely negatively, which is a strong trump card in the hands of those advocating the restart of the nuclear power plant. This is why the card of the plant's military vulnerability was played, given that it is located close to the Armenian-Turkish border. The opponents of the plant's revival assert that it might easily fall prey to sabotage or terrorist groups or become a target of missile, artillery, or air attacks.

According to Ashot Martirosyan, chief of the Special Programs Administration of the Armenian Energy and Fuel Ministry, the government, as it was making this decision, took into account all these circumstances. Out of 19 points of the 7 April Council of Ministers decree, three are strictly confidential. They deal with matters related to the plant's security and contain the appropriate requests to the State National Security Administration, the Ministry of Internal Affairs, and the Defense Ministry. Naturally, Ashot Martirosyan did not say anything about the specific contents of the points, but he noted that the already devised protection methods produce a very strong impression even on specialists and virtually guarantee the nuclear power plant's invulnerability to any attack.

According to Gerasim Sevikyan, the power plant's engineer, the plant could be destroyed only by intensive, high-precision bombing conducted without hindrance, but even in this event the nuclear reactor's airtight shell [penal] was designed to survive even if directly hit by a large-caliber air bomb. Even under this hypothetical scenario of a reactor failure, however, there will be no Chernobyl-like explosion. A reactor of this type is just physically incapable of exploding, which has been confirmed by many years of operation of similar reactors in the great majority of nuclear power stations throughout the world. In the worst-case scenario, contaminated water would leak into the border river of Araks, from which it would be carried by the Kura to the Caspian Sea. This prospect is unlikely to encourage the current opponents.

It remains to be added that under the tight transport and energy blockade of the republic, there is no serious alternative to the decision to restart the nuclear power plant. To all appearances, the restart will be implemented step by step. Renovation costs, which constitute about \$50 million, will be recouped in less than a year, given that Armenia has to spend 60 billion rubles annually to import fuel oil alone. The rehabilitation work is scheduled to take between 18 and 24 months; over 100 specialists from Russian, French, and U.S. firms and a number of multinational companies and organizations are to be retained, for whom a special campus is to be constructed outside the nuclear plant.

During his latest visit to Moscow in the first half of May, Prime Minister Grant Bagratyan agreed with top officials at the Russian Council of Ministers and the Nuclear Energy Ministry that the first group of Russian engineers would start work in Armenia as early as the beginning of June. According to some indirect evidence, it may be concluded that the group of Russian specialists will include not only

nuclear engineers, but also experts in nuclear plant physical security. They will work in close contact with their Armenian colleagues. This cooperation does not go beyond the bounds of reasonable necessity, given that the plant was designed in Russia, which also provided its chief designer and scientific supervisor. According to the latest estimates, the revived nuclear power station will provide 60 percent of Armenia's electric power requirements.

BALTIC STATES

Lithuania, Latvia Facing 'Ecological Disaster'

WS0106145693 Vilnius LITHUANIAN WEEKLY in English 21-27 May 93 Vol 2 No. 20 (67) p 1

[Text] According to leaders of the Latvian state enterprise Latvijas Nafta, Lithuania and Latvia face an ecological disaster due to large quantities of diesel fuel accumulated in the oil pipeline from Russia. Hundreds of thousands of tons of diesel are estimated to be held back in the 20-year-old pipeline, running 324 km in Latvia and 85 km in Lithuania. Specialists maintain that the tubes must be upgraded in the nearest future to prevent a possible fuel spill.

Lithuania and Latvia have recently signed an agreement on corporate maintenance of the pipeline.

Soviet Troops Reportedly Left Baltic States Polluted

BR0106143693 Bonn DIE WELT in German 16 Apr 93 p 9

[Article by Susanne Hoell: "Environment in Baltic Suffers From Pollution By Former Soviet Union"]

[Text] On Estonian freedom fighter General Laidoner's former estate, just outside the city limits of Tallin, the past is plain to see. When Russian soldiers, the last occupants, vacated the onetime stately home in 1992, they left their trash behind. In the courtyard stand old barrels full of black, oily liquid, and rusting generators lie next to battered filing cabinets, old tires, and other trash.

In Estonia, as in Lithuania and Latvia, the Russian soldiers have left behind polluted sites with which the emerging, poverty-stricken Baltic republics will have to deal. While it is true that getting rid of old filing cabinets will be no problem for the Balts, the same cannot be said for the contaminated ground and soil, scattered with dud projectiles of all kinds, left by the former Soviet troops.

In Latvia, where the former USSR set up giant fuel stores, experts estimate that many of the Soviet army's 800 bases, covering 100,000 hectares, are contaminated with oil down to groundwater level. "Old missile craters are full of water and we don't know what it contains," was how one employee of the Latvian Environment Institute in Riga described the situation.

The Estonians have even worse fears. Environment Minister Andres Tarand fears that the Russian marine base of Paldiski, west of Tallin, where nuclear submarine crews had, until recently, been trained on test reactors, could be radioactively contaminated. Foreign experts have so far been

unable to inspect the facility, which is still guarded by Russian soldiers, much less the Silmet chemical factory in Sillamae, northeastern Estonia, which belongs to the former Soviet military industrial complex, and where uranium dioxide was produced. The English-language newspaper BALTIC OBSERVER describes the facility, which has now switched to less risky products, as "a monster."

Air and water pollution and unsafe nuclear installations are often the result of the economic conditions that prevailed in the days of the USSR. Under Soviet rule, the three Baltic states were integrated into Moscow's centralist planned economy. Under Soviet control, the three Baltic states were integrated into Moscow's centralist planned economy. In the seventies, for example, the Kremlin was responsible for building in Lithuania the largest nuclear power station of the same type as the disaster-struck Chernobyl reactor. The reactor in Ignalina, about 100 kilometers northeast of the capital, Vilnius, with its two 1500-MW blocks, has a bad reputation. There is one incident after another. In the view of environmentalists, the installation should be immediately and completely shut down, but, although the power station was once regarded as a symbol of the hated Soviet despots, the Lithuanians believe they cannot afford to do so at present. The country has no energy reserves of its own, but, thanks to Ignalina, Lithuania has become a power exporter. It sells its nuclear power for hard currency, using the proceeds to pay the increased prices for Russian oil and other necessary imports.

Swedish experts are currently attempting to improve safety standards at Ignalina. They are also helping in Estonia, which relies on burning oil shale for its energy supply—a method that is just as inefficient and environmentally damaging. Unfiltered sulfur dioxide is escaping from two oil-shale thermal power stations in the northeast of the country, creating, say experts, "catastrophic conditions" there.

Baltic Republics Seek Foreign Aid for Nuclear Power Station

*PM2805092193 Moscow IZVESTIYA in Russian
27 May 93 First Edition p 4*

[Report by Lenina Kaybysheva: "Balts Ask for Nuclear Power Stations To Be Constructed for Them"]

[Text] What only quite recently could be regarded as a sensation and generate no emotions other than a feeling of protest is today being discussed in a businesslike and completely calm manner: For the Baltic countries only a nuclear electric power station can be the ecologically cleanest and therefore most acceptable source of energy.

That was the conclusion reached by the governments of Lithuania, Estonia, and Latvia. They have asked the governments of Russia, Sweden, Britain, and France to draft plans for a safe nuclear electric power station [AES] for them.

Excited meetings and pickets at the entrance to the Ignalina AES in Lithuania, insulting remarks addressed to the operators, attempts to prevent them from getting to work—only very recently all this vigorous activity on the part of the

"greens" made a considerable impression on passers-by. Nor did the AES workers feel like joking. The point was that a nonoperational AES requires constant control, not less but perhaps even more than an operating one.

The construction of the third reactor unit of the Ignalina AES was suspended soon after the Chernobyl tragedy. At the time it was to some extent possible to understand the mentality of the "greens": The same high-power pressure-tube reactor operates in Lithuania as at Chernobyl, only it is 50 percent more powerful. It is true that the Lithuanian reactor is of a later generation and therefore improved and safer. But nonetheless it is a high-power pressure-tube reactor. Somehow the Ministry of Atomic Energy's announcement that there had been an inspection at all domestic AES's and that some improvements had been made back in the summer of 1986 was not accepted. In subsequent years a very great deal has been done to increase the safety of reactors of the high-power pressure-tube variety and at the same time of the water-moderated water-cooled reactors.

Over these years draft proposals have been elaborated for several versions of reactors of the new generation with a yield of 500 and 1,000 megawatts. They are based on a reactor of the water-moderated water-cooled type which is most widespread in our country and abroad. The priority requirement for any version is safety. The new reactors are designed to have three containment structures each for different purposes and between them systems for localizing waste if an accident nonetheless occurs. So-called deeply echeloned shielding is envisaged, preventing gross deviations from the reactor's operation procedure. In the opinion of the planners these reactors are better than any foreign counterparts.

"The Russian Ministry of Atomic Energy has accepted the Baltic governments' suggestion and is prepared to take part in joint developments or on a competitive basis with any specialists," Ye. Reshetnikov, deputy minister for atomic energy, said.

What led the Baltic leaders to this decision, an unexpected one even to them? Harsh reality and realistic accounting. They do not have their own coal, oil, or gas here. Shale cannot be included among clean fuels—a stream of smoke extends from the Estonian state regional electric power station and cleansing installations make electricity generation approximately 50 percent more expensive. As a result the Baltic states were faced with the threat of an energy famine and, as we know, famine is a hard taskmaster. A choice has to be made: either to reduce life's comforts by comparison with life today or, conversely, to improve comfort and sell the surplus energy. But it is still unclear what funds the Baltic states intend to use to construct enterprises as expensive as nuclear power stations. But that, as they say, is a problem for the customers. The problem for the Russian leadership is not to sell them too cheap, still less to offer them free, as was the case in the past.

REGIONAL AFFAIRS

Controversy Continues Over European CO₂/Energy Tax*BR0106144793 Munich SUEDEUTSCHE ZEITUNG in German 17/18 Apr 93*

[Text] The combined carbon dioxide/energy tax proposed by the EC Commission as long ago as October 1991 is still not forthcoming. There was still dispute among the EC members over many major aspects, explained Elmar Becker, head of the energy department at the Federal Trade Ministry. Becker does not foresee the new tax coming into effect before 1995/96 at the earliest. The Council of EC Environment and Energy Ministers will tackle the subject again next Friday.

According to Becker, supporters and opponents of the tax in the EC were evenly balanced. As well as Germany, Denmark, the Benelux countries, and Italy wished to see the tax plans approved as swiftly as possible. The UK, Spain, and Portugal had expressed doubts or opposition. In view of their desire for economic growth, they wished to avoid tax burdens as far as possible. France's attitude depended on the way the tax was framed. Greece apparently wished to make approval subject to measures in other areas. Adoption of the tax requires a unanimous decision.

The EC Commission's plans envisage a 50-percent tax on both carbon dioxide emissions from fossil energy sources and their energy content. The tax rate is to rise in annual steps from \$3 a barrel crude oil equivalent to \$10. Renewable energies are not to be taxed. Receipts are to go to the member states. At the \$3 rate, the amount raised in Germany would be about 11.5 billion German marks [DM]. However, the new dues are not intended to increase the per capita tax burden, so concessions would be necessary in other areas. For Germany, corporate income tax relief is under discussion. The ministries of finance and trade are working on a model that provides for tax concessions on investments to reduce CO₂.

Becker is not expecting a breakthrough from the forthcoming meeting of the Council of Ministers; It would be "of very great value" if it were at least to produce a unanimous profession of faith in the tax. In addition to the ratio between the CO₂ and energy tax components, the question of whether transition periods could be introduced to assist Spain and Portugal is also unresolved. It is also unclear whether the tax is to be an electricity tax or a tax on the energy sources used (input tax).

If it were an electricity tax (output tax), the General Agreement on Tariffs and Trade (GATT) regulations would mean that the lowest domestic tax rate would have to be applied when taxing imported goods. As the EC wishes to waive taxation on hydroelectric and solar power in order to promote renewable energy sources, imported electricity would not generally be taxed. The consequence would be tax-free trading in electricity, with eastern European countries, for example.

Various models, ranging from pure input taxation to combined models involving both input and output taxation, are

therefore under discussion. Owing to the differing power station structures in northern and southern Germany, however, some of these models give rise to competitive distortions in the energy industry at national level.

Becker made it clear that, although the Federal Government welcomed the tax plans in principle, it was also pleading for an exception in favor of the eastern German brown coal industry, which was in a difficult restructuring phase. At an initial tax rate of \$3, brown coal will be liable for DM30.59 per tonne hard coal units, more than coal (DM27.48), oil (DM24.56) or natural gas (DM21.30). At a \$3 tax rate, the price per liter of gasoline would increase by 2.7 pfennigs, and at \$10 by almost nine pfennigs. Diesel would go up by 3.1 and 10.28 pfennigs respectively, and light fuel oil by 3.4 and 11.47 pfennigs per liter.

Becker made no secret of the fact that the Federal Government regards the energy tax as an opportunity to finance German hard coal subsidies in the future. Subsidizing via the "Coal Pfennig"—a surcharge on the electricity bill—will end at the end of 1995, and to this extent the EC tax would come at just the right time for Bonn. Becker did not say whether Bonn would go it alone on the tax if the EC were unable to agree on legislation.

EC Assesses Impact of Environmental Policy on Employment*BR0106142693 Groot-Bijgaarden DE STANDAARD in Dutch 28 May 93 p 2*

[Article by Antoon Wouters: "More Stringent Environmental Policy Will Not Entail Less Jobs—Internal EC Memorandum Unveils 'Environmental Jobs Strategy'"]

[Text] Brussels—In the long term, a conflict between the environment and employment is impossible. On the contrary, economic systems that do not respect the environment and which exploit natural resources cannot be sustained, and will go wrong sooner or later. In the East bloc, environmental degradation is causing unemployment. These were some of the claims made in an internal memorandum drawn up by the European Commission for the EC environment ministers. The Commission is sketching out an "Environmental Jobs Strategy" in which the fight against unemployment is coupled with a more stringent environmental policy.

The EC is facing a twofold challenge. The economic slump means that there are now approximately 17 million people unemployed. This fact is creating human and social problems, and represents a tremendous waste of human resources. At the same time, there has been a strong increase in environmental awareness. Roughly 85 percent of EC citizens want environmental pollution to be dealt with urgently.

The Commission believes that there is no inherent contradiction between employment policy and environmental protection. Indeed, they are related, for both cases reflect an injudicious use of resources.

The environment is abused because we do not have to pay for it, although we enjoy the economic benefits derived from

it, claims the Commission. This kind of unsustainable behavior represents a threat to the economy. The gross national product (GNP) of the member states takes no account of the price of environmental products. So, they are overestimating the economic benefits of growth and falsifying the economic analysis of the environmental policy.

Durable

A more stringent environmental policy does not cause unemployment. Unemployment is caused by exceptionally poor economic growth, combined with structural problems. Over the past decade in the EC, demographic developments, technological progress, wage demands, and government policy have not made for a job-friendly climate. The labor market was even disrupted. High interest rates and uncertainty among entrepreneurs did the rest.

The Commission is opting for an approach aimed at long-term development: Today's generations are sustaining economic growth without endangering the social and economic development of the next generations. Henceforth, according to the Commission, prices must also take account of the scarcity of natural resources and the vulnerability of ecological systems. If the free market fails to do this, then the government must step in.

More than 50 percent of direct or indirect taxation is labor-linked. In some member states, wage costs for employers are easily double the net amount received by their employees. By contrast, only 10 percent of taxes are associated with the use of natural resources.

This relationship must be turned around, says the Commission. This will entail not only environmental advantages, but also economic benefits, since we are ahead of market developments. There is a worldwide movement toward environmentally friendly products and technologies. The free use of the environment is continually being restricted.

Japan and the United States are already implementing a policy aimed at achieving durable growth. The EC cannot afford to lose this technological race. At stake is the market share that the EC will or will not gain. According to the Commission, Europe would be committing economic suicide if it put off making the required changes.

Environmental Jobs

Investing in the environment is economically worthwhile and creates jobs. On the one hand, preventing pollution generates money; on the other hand, according to OECD calculations, the market for environmental products and services in the industrialized nations was worth approximately 7 trillion Belgian francs [Bfr] in 1990; by the year 2000, the equivalent total will be more than Bfr10 trillion. The environmental market is even larger if the former East bloc and the Third World are taken into account.

Within the Commission's "environmental jobs strategy," the public sector must earmark expenditures for cleaning up and investing in the environment, for education, training, and research and development. Secondly, the taxation systems in all member states must be thoroughly reformed with a view to enhancing their effects on growth, employment,

and the fight against environmental pollution. It must be determined how environmental taxes can contribute toward this. A turnaround of this kind must be achieved gradually and according to a fixed agenda.

Thirdly, there is a need for an integrated approach whereby all policy decisions take account of the employment situation and environmental considerations. Finally, the Commission concludes that durable growth can never be attained unless manufacturers and consumers can be influenced to radically alter their behavior.

AUSTRIA

Complexity of Ozone Layer Problem Reported

93WN0438B Vienna *DIE PRESSE* in German
5 May 93 p 12

[Article by Michael Lohmeyer: "Winds Solve Problem Only in the Short Term"]

[Text] Vienna—The first gusts of wind are interrupting the proverbial "calm before the storm." No sooner have the debates about the dangers and effects of the dwindling ozone layer ebbed a bit, and the ozone close to the earth becomes a matter of central interest. Even if cool winds are giving us a breather, it would be an illusion to believe that ozone will not become a determining factor of environmental policy.

Above too little, below too much: "ozone hole" and "ozone sea" are closely connected; at an altitude of 14 to 22 kilometers, in the stratosphere, there is less ozone; hence ultra-violet radiation can reach the earth to a larger degree. That increases the frequency of skin cancer and eye diseases and muddles up the vegetative balance, intensifying in the process the greenhouse effect and the continuous warming of the earth atmosphere.

On the other hand, directly above our heads, in the lower layers of the troposphere, there occurs a steady increase in the concentration of ozone. In particular, light hydrocarbons like those in solvents, and nitrogen oxides are primarily responsible for activating the formation of ozone. Ozone is a poisonous irritating gas that has a negative effect on the functioning of the lungs. Especially at risk are children, the elderly, and the sick. Added must be its effects on our vegetation in the form of crop failures and forest damage.

The Greenhouse Effect as a Vicious Circle

As if it were not yet complicated enough, between both phenomena—the diminishing of ozone in the higher altitude and its increase on the earth surface—many interactions occur, not all of which have been studied, however. Still, it is known that the more concentrated ultraviolet radiation which, as a result of the stratosphere's thinning ozone layer, passes down to earth, encourages the formation of ozone near the ground.

In addition, ozone close to the ground is far more reactive than, for instance, carbon dioxide, which after all accounts for half of the warming process. Less than one-thousandth of ozone molecules is needed to trigger the same greenhouse effect as carbon dioxide.

The intensified greenhouse effect in the lower layer of the atmosphere has a cooling effect on the stratosphere. Above the Antarctic regions, long-lasting temperatures below minus 80 degrees make it possible for the ozone hole—the shrinking of the ozone layer by more than 50 percent—to form. In the medium term, a cooling down of the stratosphere could turn temperatures colder above the arctic as well—hence, an ozone hole is threatening to form there as well.

Some of the uncertainties of past years have since been cleared up: last year, Federal Environmental Office efforts demonstrated beyond doubt that the underlying substances—nitrogen compounds and solvents—are primarily homemade and not due to long-distance transportation. Scientists are putting the primary blame on individual transportation vehicles. The major culprit, they believe, are passenger cars without catalytic converters. These cars are responsible for covering three times as many kilometers. Power stations and industry achieved a noticeable reduction in their nitrogen oxide emissions, while such emissions caused by road traffic barely decreased.

In the case of solvents as well, individual transportation is blamed for one-third of all nitrogen oxide emissions. Fuels for household use are in second place on the emissions hit-list.

So far, most countermeasures only exist on paper: By 1996, the component substances are to be reduced by 40 percent (from 1985 nitrogen oxide and 1988 hydrocarbon levels); by 2006, by 60 percent and by 2006, by a total of 70 percent. Except for reducing the emission of solvents, it will take a long time before concrete measures are applied, if only because of Austria's jurisdictional jungle.

Implementation of the clean air law is the responsibility of the province and the headline-making "ozone episodes" do not give one iota about provincial borders. If the ozone levels are skyrocketing in the area around Vienna, it is undoubtedly due to emissions in the federal capital. In Vienna itself, ozone levels are rather low: The constant supply of component substances prevents the formation of ozone. It immediately disintegrates, converting under constant nitrogen bombardments into nitrogen dioxide.

Therefore, the highest ozone levels occur in "clean air areas"; starting at an altitude of about 700 meters, they no longer break down even at night.

This is exactly what makes political action so difficult: For instance, the imposition of driving bans in an ozone-high region is ineffective so long as pollutants from the nearby urban center keep coming. However, if cars are prohibited from being driven there, then the ozone level cannot be expected to go down until a few days later. In the short term, it even may rise in the city: First, the component substances must have disintegrated; in other words, ozone levels will be going up for 2 or 3 days.

Which head of a provincial government can politically survive the drumming against a driving ban, when at the same time the news media keep reporting, hour by hour,

higher ozone levels, warning that children, the sick and the aged should not stay outdoors for too long—even in gorgeous summer weather?

Manfred Haider, chief of the Institute for Environmental Hygiene at the University of Vienna, believes that, from a medical point of view, the critical values for early ozone warnings (100 ppb [parts per billion], warning level I (150 ppb) and warning level II (200 ppb) are adequate. "I look at an inflation of warnings and early warnings with skepticism. That dulls the mind. It would be more important to really do something once the warning level has been reached. And it is even more important to bring the levels down in the long term."

"Reducing Emissions to the Level of 1950"

Forest ecologist Anton Krapfenbauer, professor at the University for Soil Culture, does not only speak out against the lack of far-reaching measures. ("Emissions must be lowered to the level of 1950—no more and no less,") but also against the measuring methods. Frequently, the equipment is too close to the road (where ozone is immediately converted) and too close to the ground. "At the top of the Danube Tower, the ozone level is 20 to 30 percent higher than on the ground." Furthermore, too little attention is paid to the mixture and movement of air within the air layers.

However, levels considered acceptable for people, are a catastrophe for plants, Krapfenbauer is railing. "Tests have shown that the yield of cultivated plant—such as potatoes—drops by up to 50 percent. At the same time, our forests are being severely damaged in their vitality." Haider agrees with Krapfenbauer when the latter urges a maximum level of 30 ppb for the vegetation. "But this a utopian value."

Carbon Emissions Down for First Time

93WN0438A Vienna *DIE PRESSE* in German
17 Apr 93 p 17

[Article by Michael Lohmeyer: "Greenhouse Gas Emissions Diminishing; Five Million Tons Less Carbon Dioxide"]

[Text] Vienna—Last year, carbon dioxide emissions were down for the first time: A still unpublished emissions balance for the months of January through November 1992 shows that, in Austria, almost 8 percent less carbon dioxide was emitted.

The story in concrete figures: While, in 1991, Austrian emitters blew 63.4 million tons of greenhouse gas into the air, by the end of November 1992, emissions had dropped to nearly 52.3 million tons, that is, a 7.8 percent decline since 1991. Because it falls into the winter heating period, the month of December—like January—shows a relatively significant increase; nevertheless the experts agree that, when the balance for the entire year becomes available, it will show that carbon dioxide emissions have declined in 1992 as well. It should be between 57 million and 59 million tons.

While the emissions—measured in heat calories—by power stations, small customers and individual consumers keep going up, consumption in all other areas, e.g., industry, declined. That means that in terms of heating materials,

carbon dioxide emissions from lignite (minus 45.5 percent) and bituminous coal coke (minus 30.9 percent) fell most. The minus in municipal gas (98.6 percent) may sound sensational, but it is only a matter of residual stocks, so that the total sum can be almost neglected.

In a June 1988 climate conference in Toronto, Austria committed itself to reduce carbon dioxide emissions by one-fifth by the year 2005, based on 1988 (when 55.4 million tons were emitted). Compared with the January-November 1988 period, last year carbon dioxide emissions rose by 7.7 percent. The Toronto goal is 4.3 million tons. In other words, a decrease of about 25 percent must be achieved within 12 years.

The German goal is even higher; the FRG committed itself to cut emissions by 25-30 percent (one-fifth in western and 30 percent in eastern Germany). As a result of business shutdowns, eastern Germany also registered a decline of several percent. The other EC member countries and Japan aim at stabilizing emissions, by 2,000, at the level of 1990. Carbon dioxide is one of the main causes of the greenhouse effect and the warming of the earth atmosphere.

More Emission in Road Traffic

In the eyes of the experts, the continuing uninterrupted rise of emissions in road traffic causes the largest concern. Here, emissions have increased by almost 23 percent since 1988, and by nearly 2 percent since last year. In addition, according to a study by the Seibersdorf Research Center, passenger cars with Otto engines without a catalytic converter or with diesel engines cover over three times as many kilometers as passenger cars with a catalytic converter.

Biomass Covers One-Tenth of Austria's Power Requirement

BR0806130593 Wuerzburg UMWELTMAGAZIN
in German No 4, Apr 93 pp 126-127

[Article by Manfred Klemm: "On the Timber Trail—Biomass Covers One-Tenth of Austria's Thermal Energy Requirement"]

[Text] At the beginning of December last year, a group of experts from Brandenburg went on a study trip to Austria to familiarize themselves with the country's facilities that use biomass, especially timber, to generate power, and to look into their applicability for Germany.

In Austria, 10 percent of thermal power is currently generated from timber or timber residues. This policy is pursuing the strategic objective of increasing this figure to 20 to 28 percent by the turn of the century. In Germany, the proportion is below 0.5 percent, although, considering the available resources, a much higher percentage could be achieved here too. For example, the Land of Brandenburg could gain a considerable proportion (around 10 percent) of its heating requirement from the timber residues currently rotting in the woods and only useable for energy purposes.

Another factor in favor of this fuel is its CO₂-neutrality. During thermal conversion, timber releases only the amount

of CO₂ that it has absorbed during its period of growth. When it rots in the woods, the same proportion of CO₂ is also released.

Contrary to the trend in Germany towards using primarily oil and gas for fuel, solid fuel systems have traditionally accounted for a relatively large percentage of the Austrian market, all the more so since special log- and timber-fired systems have been designed that guarantee the maximum degree of automation in the operation of small boilers, even on a small scale (single-family homes).

Timber—If Not Free, At Least Cheap

The purchase prices of such systems are up to three times higher than those for gas- or oil-fired systems, but can very rapidly be recouped, as wood can be gathered free or purchased very cheaply (less than 400 German marks [DM] per annum for a single-family house). Other economically and environmentally interesting variants are local heating networks, of which there are currently 250. These systems are run exclusively on available biomass. The thermal power range extends from 300 kW to 10 MW.

Barn-like log stores are often built onto these local heating networks, which are 80-percent run by cooperatives. The heating system operates fully automatically. Depending on how much it costs to lay the pipes, the investment required varies between 870 and 1,600 DM/kW of installed furnace power. The customer should expect to be charged from DM0.08 to 0.12 per kWh.

Another important user of biomass as an energy source is the processing sector, which extracts heat from production waste and forest-timber waste. The power ranges extend up to 100 MW, as in a paper mill near Wolfsburg, for example. Other users are sawmills and other sectors of industry with drying processes.

In Austria, the cultivation of timber for energy (energy forests) is playing an increasing role in the reconversion of intensive agriculture to extensive sectors. Net of public funding, the cultivation of oil plants (rape, sunflowers), energy cereals, or elephant grass costs three to four times as much as energy forest cultivation.

In Germany too, exploiting biomass energy is worthwhile. There are locations in the new German laender with ideal conditions for private timber-fired systems and local heating networks, especially as many of the existing heating installations now have to be switched from brown coal to alternative fuels with a less damaging effect on the environment. The EC is providing funding for this. Some remote heating networks are also relatively well extended at the local level. In addition, municipal infrastructures (roads and public works) are being renovated, thus making it easier to install new power systems.

The fact that the timber comes from the local forests or from agricultural biomass cultivation on local fields has an effect on the labor market and the economy. It not only means employment, but also allows a large proportion of the funds spent to be put back into the local community both directly and indirectly in the form of taxes. The purchase of fossil

energy sources such as oil and gas, on the other hand, means a complete drain on local purchasing power.

FRANCE

France Promotes Nuclear Waste Storage Technologies

BRI406101993 Brussels EUROPE ENVIRONMENT in English 28 May 93

[Unattributed article: "French Agency Promotes Nuclear Waste Storage Technologies"; as released by Brussels Euroscope EIS database]

[Text] The French Agence Nationale de Gestion de Dechets Radioactifs (ANDRA) [French National Agency for Radioactive Waste Management] continues to promote its technology for surface storage of short-lived nuclear waste abroad, and recently approached the People's Republic of China and Taiwan during a seminar held in Peking in late April, according to Director-General Henri Wallard. According to a report by Agence France Presse [AFP, French Press Agency], Mr Wallard commented that the agency offers the technology used at its nuclear waste storage centre at Soulaisnes in the department of Aube, either separately or in conjunction with major nuclear projects. He added that a storage centre of this type exists in Spain and has been operating for a year. ANDRA offers everything from technical assistance to storage centre construction. In China and Taiwan, ANDRA is working with EDF [French Electricity Company] International, Technicatome, Framatome and SGN [General Company for New Technologies], but is acting independently in Korea, the United States and Latin America, not to mention the activities it plans to undertake in Eastern Europe through Cassioppee, the new joint agency for European national agencies for radioactive waste management.

Even before it officially began operating in January 1992, the Soulaisnes centre received many visits from foreign delegations interested not only in the technologies in use, but in preliminary studies aimed at providing maximum protection for the environment. The Aube centre, which cost 1.2 million French Francs, is designed to store within the next 30 to 40 years a million cubic metres, of nuclear waste from research laboratories, hospitals, the agri-food industry and construction sector, as well as material used for nuclear plant maintenance.

GERMANY

Environment Minister Defends Nuclear Power

93EN0560E Frankfurt/Main FRANKFURTER ALLGEMEINE in German 26 May 93 p 15

[Article by "hal.": "No Energy Consensus Without Using Nuclear Energy—Federal Environment Minister Toepfer Rejects Compromise"]

[Text] Bonn, 25 May—A consensus on energy policy can only be achieved if the coalition parties, the opposition, and the power industry agree to utilize nuclear energy in addition to such fossil fuels as coal, natural gas, and oil.

Renewable energy must also be given a chance. That is what Environment Minister Toepfer (CDU) [Christian Democratic Union] expressed at the annual Nuclear Energy Meeting '93 in Cologne. Separate solutions cannot be considered. Toepfer also said that the Federal Republic, in view of worldwide environment problems, cannot afford to continue the national dissent on energy. The meeting, organized jointly with the *Deutsche Atomforum* [German Nuclear Forum] and the *Kerntechnische Gesellschaft* [Nuclear Technology Association], was attended by 850 professionals in the field. They will continue to debate international aspects of nuclear energy, climatic problems, reactor safety, and waste disposal problems until Thursday [May 27].

Toepfer said, anyone who believes that relinquishing nuclear power is a good way to save energy and helps use renewable energy sources is on the wrong track. The only alternative to nuclear energy is the construction of new power plants using imported coal. Since nuclear power plants will be maintained, the useful life of existing power plants must be determined by technical rather than political factors. Toepfer admonished to solve the waste disposal problems at long last. In so doing, immediate permanent disposal and an integrated waste disposal concept should receive equal emphasis. The permanent disposal of radioactive waste materials should be in Germany. Therefore, the exploratory work in Gorleben should continue.

The CEO of the *Bayernwerk AG*, Jochen Holzer, indicated that before the 1994 elections the chances for an agreement among the parties on energy policies are less than 50 percent. The future of nuclear energy in Germany is not a technical, economic, or ecological question, but will be determined by the political leadership and by the manner in which social groups interact. Holzer regrets that the large parties are in a leadership crisis. The trade unions, he said, are becoming irrelevant and industry lacks courage and, possibly, also ideas. Holzer also asked for secure waste disposal facilities in Germany with adequate intermediate and permanent storage capabilities. The Konrad repository should be activated promptly and the problem of the old waste dumps at Morsleben should be resolved without delay. The new production site for Mox nuclear fuel elements in Hanau should be completed, so that the plutonium received as a result of foreign reprocessing contracts can be processed.

The president of the *Deutsche Atomforum*, Claus Berke, said that last year 39 percent of western German electricity was generated by nuclear power plants. The rate for all of Germany, he said, is 33 percent although eastern Germany no longer has an operating nuclear energy plant. If nuclear power plants were shut down and replaced by coal-operated plants, the emission of carbon dioxide would rise from 200 million tons to 360 million tons. Regenerative energy is not very important. The Energy Report 2010 of Prognos only predicts a 7-percent share of generated electricity by 2010. Bundesrat Delegate Klaus-Dieter Feige, of the 1990 coalition with the Greens, renewed the demand for the immediate cessation of nuclear energy production. Feige granted that an increase in carbon dioxide emissions would have to be accepted.

Greenpeace Says German Toxic Waste Shipped To Ukraine

*LD2505111793 Hamburg DPA in German
0650 GMT 25 May 93*

[Excerpts] Hamburg (DPA)—Approximately 230 tonnes of highly toxic chemicals have been moved illegally from Germany to Ukraine since January 1993, according to information from the environmental organization Greenpeace. The German authorities have known of the illegal movement of the barrels declared as "industrial goods for further use", says a Greenpeace statement circulated in Hamburg today.

According to the organization, Greenpeace workers have found rusty drums on the premises of a barracks in Rovno (Ukraine) containing liquid mercury, old paints containing heavy metals, pure DDT [Dichlorodiphenyl-trichlorethane], hydrogen cyanide, and other dangerous chemicals.

According to Greenpeace, the chemicals come from firms in Dresden, Wolfen near Halle, Ladeburg near Magdeburg, and Hanover. Some of the load had been covered by the Ukrainian secret service in a makeshift manner. [passage omitted]

The official recipient of the toxic load was the "Podolye" company in Rovno. According to Greenpeace's information, the consignment was sent by RIMEX (Osnabrueck and Wolfen), WIMPEX (Wittenburg), "Hannelore Siebrands Import und Export" (Meppen), and Lingenau (Saxony-Anhalt). The German dealers have protected themselves against possible liability. According to Greenpeace, the contracts exclude rights to compensation.

The firms were known to the ministries in Bonn and Saxony-Anhalt since August 1992. The police in Saxony-Anhalt and Berlin also has specific information that "German and Ukrainian crooks" were operating behind the company names and were trying to get their hands on toxic waste from various companies in order to move it illegally to Eastern Europe. Greenpeace called on the federal government and the State of Saxony-Anhalt to take safety measures in Rovno immediately and return the toxic waste to Germany.

'Secret' Study Claims 'Ecological Time Bombs' at U.S. Bases

*AU1406200593 Munich FOCUS in German
14 Jun 93 pp 42-44*

[Robert Eckert article: "U.S.-Caused Pollution—What The Army Does Not Say"]

[Text] The visitors from Washington came unannounced. Specially authorized by the Pentagon, environmental inspectors of the U.S. Court of Auditors arrived unexpectedly at the U.S. base in Kaiserslautern. What they found there was worse than expected.

There were no specialists to deal with highly dangerous pollutants. According to the documents, special refuse was transported across Germany without permission.

The officers responsible had to admit that they did not even know that there were environmental laws in Germany.

A total of 13 U.S. military bases in Europe were on the agenda of the inspectors from the Auditing Court, which must have been aware that Washington would have to pay huge sums for the cleanup of the pollution.

The upshot of the secret 100-page report is that ecological time-bombs are ticking at almost all U.S. bases.

There are rusting, leaking, and unidentified poison containers; unsupervised special waste dumps and soil contaminated with waste oil, aviation gasoline, solvents, and varnishes; highly toxic detergents and heavy metals in the ground water; poorly trained personnel and missing alert contingency plans.

Environmental offenses "jeopardize political relations with the host countries. This holds particularly true for Germany," warned the inspectors. That could soon come true.

Now that the GIs are rolling up the star-spangled banner and leaving Germany, there is a heated controversy going on between Bonn and Washington on the cleanup of the polluted bases. A high Bonn government official told FOCUS that "there are still very considerable differences of opinion" in this respect. The current negotiations have proved to be "more than difficult."

With the Federal Property Management Agency as the new owner of the polluted U.S. sites, Finance Minister Theo Waigel is holding the baby now. Washington wants to be compensated for all its postwar investment. (An insider: "They want to sell every shack to us at a high price.") It is also up to Waigel to call the U.S. forces to account for the environmental pollution caused by them.

Insiders know already what the result of the finance minister's efforts will be: "The Americans will only laugh when Waigel presents his bill."

Nobody knows anyway how high that bill will be. The U.S. Army Headquarters in Heidelberg officially speaks about \$200 million for all European facilities. However, a U.S. list estimates that the cleanup of 309 places polluted by the Army in Germany alone will cost roughly \$190 million.

According to a secret U.S. Air Force list from the Pentagon, an additional sum of over \$30 million will have to be paid for environmental damage at six Air Force bases.

How much German and U.S. estimates of the pollution caused differ is shown by the example of Zweibruecken. Whereas the Air Force estimates cleanup costs at 880,000 German marks [DM] for the airfield alone, Rhineland-Palatinate analyses estimate the costs at DM238 million for the same airforce base.

A classified Washington "White Paper" estimates the cleanup of all pollution in Germany at over \$3 billion.

Bonn is still working on the bill. The Construction Ministry has been directed to analyze the bases from which U.S. troops have been withdrawn.

Final reports have been completed on 47 of a total of 782 U.S. sites. The result caused a sensation in the Construction Ministry, because none of the sites examined was free from pollution. Violations of German environmental laws had caused DM154 million worth of damage at 47 sites alone.

The Pentagon has long known the dangerous legacy of its armed forces. On 10 December 1990, U.S. Army Headquarters wrote to the commanders of the more than 50 U.S. bases in Europe:

"Do not waste time searching for new problems. Do not take any action regarding known pollution just to improve the value of a site"—as long as there is no immediate danger to health, or unless U.S. Army members could be prosecuted.

Insiders doubt whether the theoretical price of the sites still plays a major role. There is talk about a "zero solution," similar to the agreement reached with the CIS troops.

In that case, the Federal Government would take over the cleanup for the free return of the polluted sites. Brigadier General Clair F. Gill told U.S. NEWS & WORLD REPORT that the Army could not be expected to deal with the cleanup: "We do not have the time, the money, or the staff for that."

Environment Minister Ready To Assist Lithuania in Operating Reactors

BR0106145693 Bonn DIE WELT in German
19 Apr 93 p 2

[Article by Heinz Heck: "Toepfer's Change of Mind—Not All Chernobyl-Type Nuclear Power Stations Should Be Shut Down"]

[Text] Environment Minister Klaus Toepfer has changed his mind. After visiting Vilnius and Ignalina, which is 100 kilometers away, he has stated his readiness to assist Lithuania in operating the nuclear power plant situated there.

Ignalina is a nuclear power station of the RBMK-type, i.e., the kind of reactor that caused the largest nuclear accident in world history at Chernobyl in the Ukraine in 1986. It has hitherto been Bonn's policy to exclude RBMK's from the modernization program for Soviet-designed nuclear power plants, as it was thought that Chernobyl-type reactors could not be made safe, and should be shut down.

Now, however, Toepfer says: "We have to modify our position," although "this does not imply giving the RBMK a clean bill of health." There are technical, political, and economic reasons behind Toepfer's shift to a pragmatic stance. Above all, the system-related problems in Ignalina are not as great as in Chernobyl, because the two blocks in Lithuania (which, at 1500 MW each, are the largest in the world) belong to the latest generation of RBMK's, having gone on stream in 1984 and 1987. After Chernobyl, they were retrofitted to rule out explosion risks.

Toepfer acknowledged in Vilnius that shutting down the facility is not an option for this country, which is in dire economic straits. It is not just the country's own power

supply that relies extensively on it: Exporting electricity to the neighboring countries of Latvia, Belarus, and the exclave of Koenigsberg is one of its few appreciable sources of hard currency.

Against this background, Toepfer aims to contribute to improving safety by selective measures. Sweden and Finland are already acting. Among the specific tasks in Ignalina are improvement of fire prevention and leakage identification, and, above all, setting up an inspection system independent of the plant's operators.

A further problem is that Ignalina is operating for a transitional period with wet used fuel element storage. Dry storage will require 10 to 20 containers at a unit price of \$340,000.

In 1993, Toepfer has 33 million [currency not specified] available for central and eastern Europe and the CIS, to be spent exclusively on software (studies, consultancy). In 1994, a modest appropriation for hardware (materials supplies) will be added.

Soviet Troops Left Eastern Germany Polluted

BR0106144093 Munich SUEDEDEUTSCHE ZEITUNG
in German 16 Apr 93 p 6

[Text] An investigation of troop training grounds in Mecklenburg-Western Pomerania, Saxony-Anhalt, and Thuringia presented in Magdeburg by the German army reveals that armed forces from the [former] Soviet Union and GDR have left "ecological time bombs" behind on training grounds in the new federal laender. Geologist Josef Alt-mayer described the situation on the Red Army's former training ground in Ohrdruf (Thuringia) as shocking. Several layers of munition residues were scattered over the area. Mines and aerial bombs, sometimes with intact fuses and explosive charges, were nothing out of the ordinary. He reported that the western group of the Russian forces has now set up units to deal exclusively with cleaning-up operations. On the training grounds of the former National People's Army [NVA], the overall impression was "not as bad as had been feared." The NVA had collected used oil together centrally, salvaged munitions trash, and returned old batteries to the manufacturer.

Centrifugal Plastic Waste Sorting Process Described

BR0906140093 Wuerzburg UMWELTMAGAZIN
in German No 5, May 93 p 82

[Text] Germany produces about 2.5 million metric tons of plastics waste a year, 80 percent of which is still dumped or incinerated and only 20 percent reprocessed. The 800,000 tons of plastics, mainly from packagings, that find their way into household waste every year are a particularly great problem. Sorting them is an expensive process and has major disadvantages in that the sorting accuracy is too low, it requires an enormous amount of space, reprocessing takes a long time and plastics reprocessing plants use a lot of water. Recovering plastics by sorting them into distinct categories for making new quality products is virtually impossible with existing technologies.

The new censor (centrifugal sorting) process is the first in the world to use specially constructed centrifuges to separate the various assorted and dirty plastics for subsequent recycling with almost 100 percent accuracy. The centerpiece of the process is a specially developed biconical solid bowl helical conveyor centrifuge. The mixed plastics are fed into the centrifuge in suspension and encounter the surface of a water ring turning at high speed. Here, heavy vortexing takes place. The plastics are isolated for subsequent sorting and most of the dirt removed. In the centrifugal field with its up to 1500 g acceleration, particles denser than water sink to the centrifuge bowl, while lighter particles float to the surface. The two plastics fractions for separation are carried to different ends of the centrifuge by helical conveyors running in opposite directions, their coils having different diameters and pitches, drained in the conical section and removed with about 2 to 5 percent of residual moisture.

A diaphragm extending into the water ring from the helical conveyor prevents floating material being carried away with the sinking material. At the same time the circulating water is mechanically cleaned in the centrifugal field. If the process is repeated with several centrifuges and working liquids of different densities, different specific plastics can be separated from each other in sequence. Following successful completion of a long-term trial in a largish pilot plant, the process will be put on the market this year.

Developments in Automobile Scrap Recycling

New Plant Being Built

BR0106151393 Bonn DIE WELT in German
13 Apr 93 p 12

[Text] Federal Environment Minister Klaus Toepfer has called for German automobile manufacturers to take "responsibility for their products from the cradle to the grave." Laying the foundation stone for a new automobile scrap recycling plant in Halle, he said last week that he wanted ease of recycling to be in the producers' own interests.

Central German Recycling and Disposal GmbH Halle is constructing its own modern car recycling plant near Halle, in which 1,000 scrap vehicles per year—including the Trabant and Wartburg brands—will be dismantled, in the future and a proportion of their components reused. Investments to the tune of 6 million German marks [DM] will be required by the time the plant is completed in about 2 years' time. The company is working with ADAC [General German Automobile Club], Preussag Auto recycling, and Ford. Preussag AG is planning to set up a network of 100 dismantling centers throughout Germany by 1998. The investment required amounts to about DM700 million.

Consortium Solutions

BR0106152693 Bonn DIE WELT in German
13 Apr 93 p 12

[Text] A united stand against car waste: Joint European and local-level systems are now a reality. Last December five manufacturers—Citroen, Fiat, Peugeot, Renault, and Volvo-formed the "European Car Manufacturers' Recycling

Group" (Eurhekar). It aims to set up an international network of take-back and recycling plants, to which end its five members intend to make use of their 6,000 dealers all over the republic, who will take back old cars, quote the owner a price, after consultation with the recycler, that includes the cost of transporting it to the dismantling center, and issue the owner with a recycling certificate. Contract carriers will then take care of transport to the dismantling plant.

Eurhekar estimates that its models account for about 20 percent of the 2.6 million cars scrapped annually, and considers 100 licensed recyclers in Germany to be sufficient. The operation is being monitored by the Bavaria Saxony TUV [Technical Supervisory Board], whose manager Peter Hupfer also welcomes other automobile producers within the EC single market: "We are not a closed club."

A recent development in the Ruhr area is the Automobile Recycling Association (ARiV), a consortium of 16 companies that want to combine their knowhow to overcome the problem of car scrap in their region. Participants include producers (Opel and Ford), disposal companies like market leader Thyssen-Sonnenberg, and also energy and chemical companies (Ruhrkohle/Hoechst).

ARiV calculates that 15 dismantling plants with a capacity of 40 vehicles per day are required in the Rhine and Ruhr region to dispose of the scrap models in the correct way. If the 100-million German mark [DM] project is to be implemented, however, ARiV anticipates that the owner will incur costs that cannot be covered by the recycling proceeds. "With existing technologies, there is a DM300 to 400 shortfall per passenger vehicle."

Advanced Technologies

BR0106152193 Bonn DIE WELT in German
13 Apr 93 p 12

[Text] The current recycling strategies of the automobile industry present a varied picture. A WELT survey revealed that technologies that in some cases have already been extensively developed are often faced with insufficient recycling capacities.

For instance, the annual capacity of BMW's pilot dismantling works in Landshut, which has been in existence for two-and-a-half years, is currently 1,200 vehicles, whereas domestic sales stand at about 245,000 units. With only six companies, all the BMW's ever produced can be disposed of. The main objective is a dismantling-friendly vehicle design, which can be achieved by systematically identifying and standardizing all the components. When the components can no longer be recycled, the material is used. For example, the insulating material for the floor of the third-series BMW is made from old seat covers.

Opel AG is working on similar lines. Items with a fairly large surface area such as dashboards and door panels are produced from pure and uniformly marked plastics and can be used up to seven times. In Opel's opinion, tires should be burned in power stations in view of their combustibility.

This would, however, require appropriate filter units. So far, however, the Russelsheim-based company gives a take-back guarantee only for the Astra.

Mercedes-Benz is now on the lookout for a steel works for a process developed by the Linz-based Voest steel company: In the metal recycling process, the vehicle frame is dismantled and fed into a cupola furnace for steel production. According to Mercedes, the energy content of the organic materials makes for up to a 40-percent saving in primary energy. The process is claimed to be particularly suitable for scrap and used vehicles with limited dismantling potential, which are taken back without exception by the Stuttgart-based company. The Darmstadt Ecology Institute has expressed the criticism that insufficient consideration was given to the dioxin given off during incineration.

Audi AG regards itself as a "pioneer" of plastics recycling. The company collects materials from scrap vehicles via the VW/Audi customer service, and uses them in production, for example, for the bumpers of the new Audi 80. The Ingelstadt-based company said that plastics that could not yet be recycled were meanwhile being replaced by more environment-compatible plastics.

Manufacturers Protest

BR0106151893 Bonn DIE WELT in German
13 Apr 93 p 12

[Article by Frank Elsner: "Dispute Over Car Scrap Ordinance—Manufacturers Against Taking Cars Back Free of Charge—Environmentalists Criticize Low Level of Recycling"]

[Text] If Federal Environment Minister Klaus Toepfer has his way, German car drivers will dispose of their old vehicles in the following way in the future: They will take their metal darling to a recycler for the company that manufactured it, who must take back the vehicle. It will not be a long journey, because the manufacturers are setting up a take-back or collection system that is "at least as dense as the sales network." The final owner incurs no costs unless he has stripped the vehicle of serviceable parts beforehand or soiled it badly. For models licensed before the regulation is issued, a charge is made only if the disposal cost exceeds the proceeds from recycling.

The recycler must first "dry out" the vehicle, that is, remove the oil, gasoline, and other operating fluids. As many components and materials as possible are then dismantled and used as spares or recycled as materials. However, Toepfer's ministry does not give binding recycling quotas; they are only to be regarded as "targets," for example, 20 percent of plastics by 1996 and 50 percent by the year 2000. Moreover, automobile manufacturers are urged to take recycling into account in the development stage.

This scenario is set out in the Automobile Scrap Ordinance annexed to the Waste bill before the federal cabinet. It is intended to replace the previous shredder method (scrap press), whereby only the metal parts of cars—about three-quarters of the weight—can be used in steel works, while the remainder—glass, rubber, and plastics—ends up on the dump. As some of the substances are highly toxic, the

residues, amounting to about 450,000 tonnes per year, are regarded as special waste, the disposal of which costs between 400 and 800 German marks per tonne.

The process now planned by the Environment Ministry for the 2.6 million vehicles that are scrapped every year is, however, meeting with protest from the manufacturers. For two years they have been seeking a joint recycling strategy in the "Automobile Industry Car Scrap Recycling Project (PRAVDA) in close cooperation with the branch association, the VDA [Association of German Automobile Manufacturers].

The point at issue is, firstly, the obligation to take back automobiles free of charge, which, according to the head of Pravda, Gunter Zimmermeyer, would increase the purchase price of the vehicles. A variable pricing system whereby the disposal costs were deducted from the residual value would be more lucrative for the owner and would provide an incentive to keep a car in good repair.

On the other hand, the target recycling quotas were "simply plucked from the air," said Zimmermeyer. BMW calculates that meeting them would require three times more energy in some cases than the amount required to produce the materials from scratch. "This rigid ordinance must be made more flexible," is the resounding cry to Toepfer. In plain terms, the automobile industry wants to decide on its own how to dispose of its products.

Environmental groups consider the quotas too low, however, and point to a study by the North Rhine-Westphalia Trade Ministry. Using tougher limits, it calculated that the shredder residues would fall very little by the year 2000 in view of the increased proportion of plastics and the manufacturing boom. According to Thomas Lenius from BUND [German Environment and Nature Conservation Association], moreover, quotas that were merely targets offered "little incentive to industry."

Battery Manufacturers Reject Minister's Disposal Scheme

BR0806125493 Berlin ETZ in German
No 7-8, Apr 93 p 506

[Text] Battery suppliers are rejecting decisively the plan by the Environment Minister Dr. Klaus Toepfer to make it obligatory for the trade and battery producers to take back all used batteries. This was made clear by Dr. Franz-Josef Wissing, chief executive officer of the Central Association of the Electrical Engineering and Electronics Industry (ZVEI), and Carsten Kreklau, member of the general executive of the Confederation of German Industry (BDI), who presented their own disposal strategy.

The planned ordinance would hinder rather than assist industry's efforts to provide environmentally acceptable products. Credit went to the battery producers for the fact that 90 percent of all appliance batteries contained no pollutants and could thus be tolerated in household waste. Wissing emphasized that there was already a return system available for the 10 percent of batteries containing harmful substances. The industry considered that only Europe-wide regulations would ensure that environmental aims were

achieved without distorting competition. Unilateral national measures such as the German environment legislation were pointless in view of the Single European Market. Yet the trade and producers in Germany would be forced to introduce an unrealistic deposit system and to take back pollutant-free batteries. In Wissing's opinion, the requirements would distort the market and lead to considerable competitive disadvantages that would add another 200 million German marks per year to the costs borne by the trade and battery producers.

SWEDEN

Solid Waste Incineration Capacity Surveyed

BR1406121493 Copenhagen ISWA TIMES in English
No 2, 1993 p 9 (Tentative)

[Article by Kjerstin Ekwall of the Swedish Association of Solid Waste Management and secretary of the International Solid Waste Association Working Group on Waste Incineration: "Waste Incineration in Sweden"]

[Text] There is a yearly production of domestic waste in Sweden of approx. 2.7 million [metric] tons, that means approx. 320 kg/person and year or approx. 780 kg/household and year. Depending upon social conditions, living structure and geographical location the amount/person and year varies between 150-450 kg.

The total amount of domestic waste is not expected to increase. On the contrary it is expected to decrease due to an increased recovery of different materials out of waste.

The yearly production of industrial waste is estimated to about 4.5 million tons. Due to the varying industrial structure from municipality to municipality the amount of industrial waste also varies very much from place to place.

Treatment and disposal of solid waste is summarized in Table 1.

Table 1. Waste Treatment and Disposal in Sweden in 1991 (after source recovery; percentage of weight)

Category	Incineration	Sep./Compost.	Landfill
Household waste	50 percent	5 percent	45 percent
Industrial waste	8 percent	-	92 percent

(industrial waste amounts to 4.5 million tons)

Thermal treatment of waste combined with energy recovery is widely used in Sweden. At present, more than 50 percent, 1.4 Mtons [million metric tons], of the municipal solid waste produced in the country is incinerated. In recent years there has been a growing interest in industrial waste utilization. Today 8 percent of the industrial waste is being incinerated, or about 0.35 Mtons.

Waste incineration is an established and technically well functioning method in Sweden. At present 97-98 percent of

the energy produced is utilized. A small proportion of the recovered energy is used for steam and electricity production, roughly 1 and 2 percent respectively, while the main part is utilized for production of heat water for district heating purposes. About 13 percent of the district heating requirement in the country is covered with heat from waste incineration facilities. For some cities this proportion reaches 30-40 percent. At present 21 waste to energy plants are in operation. About 1.8 million tons of waste (domestic and industrial) are incinerated today, and the total energy recovery is 4.4 TWh. Table 2 provides an overview of waste incineration plants in Sweden.

Table 2. Waste Incineration Plants in Sweden

Plant location	Type	CAPACITY (tons/yr)	Established	Flue gas cleaning
Avesta	Grate	45,000	1980	WET,DRY,FF
Bollmora	Grate	10,000	1967	DRY,FF
Bollnas	Fluidbed	20,000	1983	DRY,FF
Borlange	Grate	20,000	1983	WET,ESP
Eksjo	Fluidbed	5,000	1979	WET
Goteborg	Grate	300,000	1972	WET,ESP
Halmstad	Grate	80,000	1972	WET,ESP
Karlskoga	Grate	35,000	1986	DRY,FF
Karlstad	Grate	50,000	1986	DRY,FF
Kiruna	Grate	50,000	1985	WET
Koping	Grate	50,000	1972	DRY,ESP,FF
Landskrona	Fluidbed	12,000	1983	DRY,FF
Lidkoping	Fluidbed	50,000	1986	DRY,FF
Linkoping	Grate	200,000	1981	DRY,FF
Malmö	Grate	220,000	1973	DRY,FF
Mora	Grate	20,000	1981	DRY,FF
Stockholm	Grate	220,000	1970	DRY,FF
Sundsvall	Fluidbed	15,000	1984	DRY,ESP
Umea	Grate	100,000	1970	DRY,FF
Uppsala	Grate	250,000	1961	WET,DRY,FF
Vastervik	Fluidbed	20,000	1984	DRY,FF

(ESP stands for Electrostatic Precipitator; FF, Fabric Filter; WET, wet scrubbing; DRY, dry scrubbing. All wet scrubbing plants also have heat recovery systems through flue gas condensation. All FB [fluidbed] plants are marked as DRY cleaning systems.)

The installations of advanced flue gas cleaning systems have increased rapidly. The first dry method application (lime scrubbing) was installed already in 1981.

The total amount of emissions from waste incineration in Sweden have since 1985 been reduced with more than 90 percent, except for SOx and NOx. Efforts have been taken during 1992 to reduce the NOx-emissions, and some plants have reduced the NOx-emissions with more than 50 percent. Table 3 shows the yearly emissions from waste incineration in 1991 in comparison with the emissions in 1985.

Table 3. Comparative Emissions From Waste Incineration in 1985 and 1991

Substance				
Unit	1985	1991	Reduction	
Dust	ton/y	420	45	-90 percent
HCl	ton/y	8,400	410	-95 percent
SOx	ton/y	3,400	700	-80 percent
NOx	ton/y	3,400	3,200	- 6 percent
Hg	kg/y	3,300	170	-95 percent
Cd	kg/y	400	35	-90 percent
Pb	kg/y	25,000	720	-97 percent
Zn	kg/y	54,000	2,800	-95 percent
Dioxins	g/y	90	8	-90 percent.
TCDD eqv. (TCDD stands for tetrachlorodibenzo-p-dioxin)				

Within the Swedish Association of Solid Waste Management a Working Group on Waste Incineration, with all 21 Waste Incineration plants in Sweden represented, is working with several interesting projects concerning Waste Incineration. The Research and Development programme within the Working Group is financed by the 21 Waste Incineration plants and the total amount of money is about 100,000 US\$ per year.

Working Group On Waste Incineration

All 21 Waste Incineration plants in Sweden are represented. Seven Project Groups are active today. Each project Group is responsible for a couple of research and development projects. The Project Groups cover the following seven areas:

- Flue gas cleaning
- Standards and emissions
- Waste as fuel
- Power production
- Operation and maintenance
- Handling of residues
- Education

Deregulated Electricity Clashes With Environment Goals

93WN0430A Stockholm DAGENS NYHETER
in Swedish 5 May 93 pp C 1, 3

[Article by Lars-Ingmar Karlsson: "Deregulated Electricity Could Threaten Environment"—introductory paragraph in boldface as published]

[Text] The current deregulation of the electricity market could conflict with Sweden's environmental goals. When electricity becomes just another product it encourages short-sighted commercial thinking.

And it discourages the idea that all of society is part of a cycle in which waste at one end can be turned into an energy resource at the other, for example.

That is the fear of Peter Steen, an FOA [Defense Research Institute] employee who has a lot of experience in energy research.

Steen is not opposed to a change in the marketing and distribution of electricity. On the contrary. In many cases old monopolistic ways of thinking have hindered both new approaches and rational management.

"But electricity is not a product that can be taken down from the shelf when it is needed and everyone has to share the same network. It must be produced at the moment it is consumed. This makes it special and considerably less suitable for free trade than other goods," he said.

If a supplier is slipshod about making deliveries, others must rescue him. Otherwise the whole system might collapse. So far this has functioned well.

But in the future, when profitability is the deciding factor, there is a risk that electric companies will stretch their delivery limits. He suspects that they may try to avoid deliveries during peak load periods when electricity is most expensive.

Overall View

However that is not what worries Steen most. This can probably be dealt with by imposing charges for nondelivery. His speculations are more concerned with a fear that in the future people may lose sight of the overall social perspective.

"The risk is that the electric companies' profits will be all that counts. In this perspective there is a danger that things like environmental demands will be seen as a limitation rather than a reference point," he said.

"To counteract this taxes can be imposed for sulfur and nitric oxide emissions. But taxes of this kind are often much too general and are apt to have a hit-or-miss effect. And they often fail to meet local adaptation needs.

"Because electricity is so important for society as a whole, electricity supply must also be guaranteed in times of crisis, war, and sabotage. Who will do this? Local combined power and heating plants provide more supply security than power plants that are located far away."

In Steen's overall view all activities in society are interconnected. Again the environment can serve as an example.

Long-Term View

From a municipal point of view, sludge from sewage treatment plants is as good a source of energy as the electricity produced in hydroelectric or nuclear power plants. Sludge can serve the same purpose. The prerequisites are that it is sufficiently clean, is spread as fertilizer on arable fields, and that energy grass or energy trees are grown on the land. In the next step the grass or wood is used as fuel to provide heat and possibly electricity as well.

"This makes it possible to dispose of something that is regarded as negative—sludge—and produce something positive—energy for which the region's farmers can produce the raw material."

With this kind of overall view employment can be combined with both environmental protection and conservation of natural resources. Seen in a long-term perspective this will also create the basis for new energy production. This is

important, according to Steen, who pointed out that the Riksdag has approved a reorganization of the energy system.

But even if more electricity is produced locally from wood chips in the future, energy grass and other environmentally compatible biofuels will probably not be sufficient to meet our needs. We will have to do a better job of economizing our resources than we do now.

New Approaches

"Nuclear power is going to be phased out. It currently provides half of Sweden's total electricity production."

The risk is that electric companies with a sales orientation will be less interested in making savings that lead to lower sales. On the other hand, increased efficiency could be a competitive tool.

But businesses still have to be innovative to keep up. That is one of the positive aspects of deregulation, Steen said.

"Where is it written that in the future we must have both a fixed basic service charge and a variable rate for the electricity we consume? Volvo also has a lot of fixed expenses in connection with bringing out a new model. But we only pay for the car we buy."

Tord Eng, who is research director at Nutek (Industrial and Technological Development Agency) and one of those who studied the deregulation of the Swedish electricity market, is looking forward to major new approaches.

"There will be a lot of different contract forms between distributors and their customers. If someone wants an 'absolutely guaranteed' supply of electricity he will have to pay the most. If a little less certainty is acceptable, it will be less expensive. If people are satisfied with having the electricity turned off during high load periods the price will be lower," he said.

Overproduction

"I also think businesses with different 'load profiles' might join forces. That would enable them to even out their consumption with the electricity distributor and avoid paying high prices for peak loads."

Unlike Steen, Eng sees quite a few positive consequences from deregulating the sale of electricity. Nor does he see any risk that things like environmental goals will be neglected. Competition will lead to cheaper electricity and that will give us more money to invest in the environment. It can also be a competitive tool, in his view.

However Steen and Eng are in complete agreement on one thing: Sweden has acquired an unnecessarily large overproduction in order to guarantee supply.

"Some of the safety margin will probably be eliminated in the future. Instead of 'buying security' from power producers, electric plants will assume partial responsibility for this themselves. An example of this is Nacka which has contemplated using Nacka Hospital's reserve power plant during high load periods. This could be cheaper than buying power from the Swedish State Power Authority, for example," he said.

Rural Areas

Delivery is very reliable in densely populated areas, but that is hardly the case in rural areas, said Eng, who continued:

"There are many poor electricity distributors in rural areas who cannot afford high standards for their electrical systems. It is very likely that the number of distributors will decline from today's approximately 300 to somewhere around 50 within a few years. They will probably be able to improve the standard in rural areas," he conjectured.

Swedes Oppose Norwegian Whale Hunting

93WN0430B Stockholm DAGENS NYHETER
in Swedish 4 May 93 p 15

[Press Wire Service, Inc. (TT) report: "Swedish Opposition to Norwegian Whaling"—introductory paragraph in bold-face as published]

[Text] Almost three-quarters of the Swedish people oppose Norwegian resumption of commercial whaling.

This was shown by an opinion poll conducted by IMU-Testalogen at the request of the Swedish Greenpeace organization.

Since 1986 there has been an international ban on commercial whaling. However, whaling is permitted for research purposes. Now Norway feels the whale population is so large that there is room for commercial whaling.

A clear majority, 72 percent of the 1,000 Swedes age 16 to 74 who were polled by IMU-Testalogen, felt it would be wrong for Norway to resume commercial whaling. Only 7 percent thought Norway would be doing the right thing.

Among young people under 24 years old, 84 percent were critical of Norway's actions.

"The result shows there is massive public opposition to Norwegian whaling. Sweden's representatives should use this as a point of reference when the annual meeting of the International Whaling Commission (IWC) begins in Kyoto, Japan on Monday," said Arni Finnson of Greenpeace.

UNITED KINGDOM

Former Nuclear Plant Chief Voices Fears on Safety

LD1306173193 London PRESS ASSOCIATION
in English 1645 GMT 13 Jun 93

[Embargoed until 0001 GMT 14 Jun 93—By Roger Williams, PRESS ASSOCIATION]

[Text] Britain's nuclear weapons factory at Aldermaston is creating a dangerous legacy of radioactive waste, according to a former director.

Peter Jones, who ran the Atomic Weapons Establishment from 1982 to 1987, is also concerned that production of the next generation of Trident warheads is going ahead in buildings over 30 years' old which might not be able to contain a bad leak.

He told tonight's [14 Jun] BBC1 Panorama programme that he was worried about facilities at the Berkshire plant—run by private contractors since April—which dated back to the early days of the nuclear age.

"There is an accumulation of buildings and equipment, radioactive materials, which you're unable to get rid of," he said. "It is a highly undesirable legacy for the nuclear industry to leave. It's something with many thousands of years of potential risk in it. It's not a safe thing to leave."

Mr. Jones, who is still a Ministry of Defence consultant, said some of the old buildings being used for the production of Trident warheads could not safely contain a serious radioactive leak.

A safer production complex had been planned for the Trident work, but it remains unfinished 10 years after construction began, says Panorama.

It says a Commons Defence Committee report on the progress of Trident, leaked to the programme, warns that if the new Aldermaston complex is not finished soon, the warhead project will be affected.

Panorama's claims come less than five months after a Greenpeace report said Aldermaston had an "appalling safety record" of unreported deaths and fires, radioactive leaks and contamination of workers. It listed 58 accidents and safety-related incidents at the site since 1955.

Panorama interviewed staff who defied the Official Secrets Act to speak of their concerns, talking of buildings "dirty" with radioactive contamination and safety inspections regarded as a "joke." Of a plutonium leak last December, one worker said: "There was a sort of controlled panic. Some of those working in the warhead assembly plant wanted to get out but all the exits were guarded by military police."

A Ministry of Defence spokeswoman said Aldermaston was regularly inspected under health and safety regulation. Safety was regarded as paramount, she said. "The facilities continue to be maintained to rigorous standards. There are double and triple checks going on all the time." She said that when December's leak was detected, staff were "required to remain in the building for their own safety."

INTERNATIONAL

German Consortium Presents Chernobyl Salvage Strategy

BR0806130193 Bonn DIE WELT in German 29 Apr 93 p 3

[Text] Michail Umanez, the man responsible for "cleaning up" Chernobyl, and Viktor Baryachtar, member of the Ukrainian Academy of Science, had come to Heidelberg on the seventh anniversary of the Chernobyl reactor catastrophe, as that was the day when seven German companies were intending to present their joint plan for saving the ill-fated reactor from a second catastrophe.

The Russians' initial reaction was that the plan prepared by the Germans is impressive and has a good chance of being implemented. Admittedly, the decision will not be taken until the summer, as the "jury" of Russian nuclear experts requires at least 2 months to examine and assess the proposals submitted by 300 competing teams from all over the world.

The background is gloomy, as Umanez (President of Ukratom Energoprom, the giant Ukrainian power corporation to which Chernobyl also belongs) explained. Contrary to all assumptions, the concrete sarcophagus in which the ill-fated reactor is sealed is "ageing" twice as quickly as forecast. The gigantic construction is expected to collapse in seven to 10 years' time.

In order to avert the catastrophe of another release of radiation, the competition in which a German consortium led by Heidelberg Power Plants has taken part was advertised. They include Siemens, Hochtief, Noell (Wuerzburg), Power and Plant Construction (Berlin-Marzahn), Nukem,

and the Nuclear Service Corporation (Hanau). The consortium has invested about 1 million German marks [DM] in its project.

According to the Germans' proposal, the sarcophagus in danger of collapse will be entombed in a second huge case of concrete. It will be 75 meters high, 300 meters long, and 250 meters wide and made of a special concrete that will survive for centuries. During construction, which is scheduled to take 5 years, the radiation will be trapped by reinforced concrete so that the workers will run as little risk as possible.

The number of people who sacrificed their lives building the first sarcophagus is indelibly printed in the memories of the Russians. Although it was completed in 5 or 6 months, it cost about 200 workers their lives. Both Russians had great praise, therefore, for the German safety philosophy.

The nuclear experts said that the Chernobyl reactors I-III will be shut down for good by the end of the year. The Germans were skeptical whether this would be achieved. They calculated that their project to bury Chernobyl would cost DM500 million. Then it was the Russians' turn to shake their heads skeptically. "It will cost at least twice that."

Indeed, the German consortium has left one important aspect out of its calculations: protection of the groundwater. This is not included as a cost factor. In order to prevent the contaminated Chernobyl effluent from flowing into the mighty Dnieper, from which Kiev draws its drinking water, the Germans want to build an enormous wall around the nuclear power station. It must have foundations 40 meters deep to fulfill its function. "This cost," said Guenter Rump of Heidelberg Power Plants, "is obviously not included in the 500 million."

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